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NORTH DAKOTA UNIV GRAND FORKS

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ARCHEOLOGICAL MONITORING AND SHORELINE RECONNAISSANCE AT THE TR--ETC(U)

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Archeological Monitoring and Shoreline Reconnaissance
at the Travis 2 Site, 39WW15, Oahe Reservoir,
South Dakota,

by

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March 1979

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ABSTRACT

From May 22 - Oct. 31 1978, the University of North Dakota (UND) under contract to the U. S. Army Corps of Engineers, stationed a field crew in Mobridge, South Dakota, to monitor the Travis 2 archeological site which was undergoing erosion at the shore of the Oahe Reservoir. The purpose of the project was to develop recommendations for future mitigation at the site. Detailed mapping and coring revealed that although a significant amount of erosion has occurred, the mitigative situation now facing the Corps is little changed from that in 1976 when the site was last evaluated.

Two mitigative alternatives are presently open for consideration. (1) Major salvage excavations could occur, ideally in the fall immediately following reservoir drawdown. Current high pool elevation and heavy snow conditions suggest, however, that major salvage excavation will be unfeasible in 1979. (2) The site could be stabilized through a massive construction program in the early spring of 1979 while the ground is still frozen, and before the cycle of inundation. If major stabilization is impossible, the site will experience another cycle of reservoir erosion and another period of monitoring will be necessary.

The UND crew also conducted limited reconnaissance along the Oahe Reservoir in the Mobridge vicinity. Eight previously recorded archeological sites were visited and their conditions were reported. The crew also conducted a limited pilot survey between Walth Bay and Mobridge, recording 15 previously unknown archeological sites, 19 isolated artifact areas, and 10 areas of geologic interest.

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I. INTRODUCTION

In 1973 the Travis 2 archeological site was discovered eroding into the eastern edge of the Oahe Reservoir near Mobridge, South Dakota (Fig. 1). The site was discovered by Marion Travis, an interested lay archeologist from Mobridge. He recognized the potential importance of the site and brought it to the attention of the archeological community in 1975. The site is particularly significant in that it has produced a large number of lanceolate projectile points, most of which are typologically similar and appear to be at least 8000 years in age.

In 1976, the Omaha District Army Corps of Engineers contracted with the University of North Dakota at Grand Forks (UND), for test excavations and subsequent analysis to determine the national register significance of the location and for recommendations for further mitigative measures at the site. Fieldwork was conducted during a three-week period in the fall of 1976. A report on the site was prepared which incorporated data from test excavations, all previous beach collections at the site, and a number of specialized archeological, geological, and related analysis (Ahler et al. 1977). The report, which appeared in December 1977, contained several major recommendations concerning the Travis 2 site. The recommendations were (1) that the site was highly significant, qualifying for nomination to the National Register of Historic Places; (2) that the site contained a reasonably large area of intact, uneroded archeological deposits which held evidence of an early preceramic or late Paleo-Indian occupation; and (3) that mitigative action should proceed at once in order to salvage or preserve the important information in the site. A major salvage excavation was recommended over attempts to stabilize and preserve the site because of the apparent high cost and complicated nature of the protective measures that would be required. It was recommended that mitigative measures take place in 1978 if possible.

The site was severely damaged by extremely high reservoir pool elevations and related shoreline erosion during the summer of 1975. The site was only slightly altered by shoreline erosion in 1976 and apparently escaped further erosional damage in 1977 when the Oahe Reservoir pool elevation was exceptionally low throughout the year. In the evaluative report it was recognized that the site might undergo further significant erosion during the anticipated high-water season in 1978, and it was recommended that in that event, a program of beach monitoring be undertaken during the erosional period in order to document the erosion and further evaluate the site situation.

The spring melt and associated runoff which occurred early in 1978 were exceptionally heavy. As a consequence, the Oahe Reservoir pool elevation rose rapidly during February and March. Before plans could be formulated for either salvage excavation or stabilization, it became apparent that the Travis 2 site would soon be partially submerged and would experience another cycle of severe wave erosion during the summer of 1978. Faced with this situation and the need for updated information on the condition of the Travis 2 site, the Omaha District Corps and UND entered into a contractual agreement to conduct archeological monitoring activities at the site during the summer and fall of 1978.

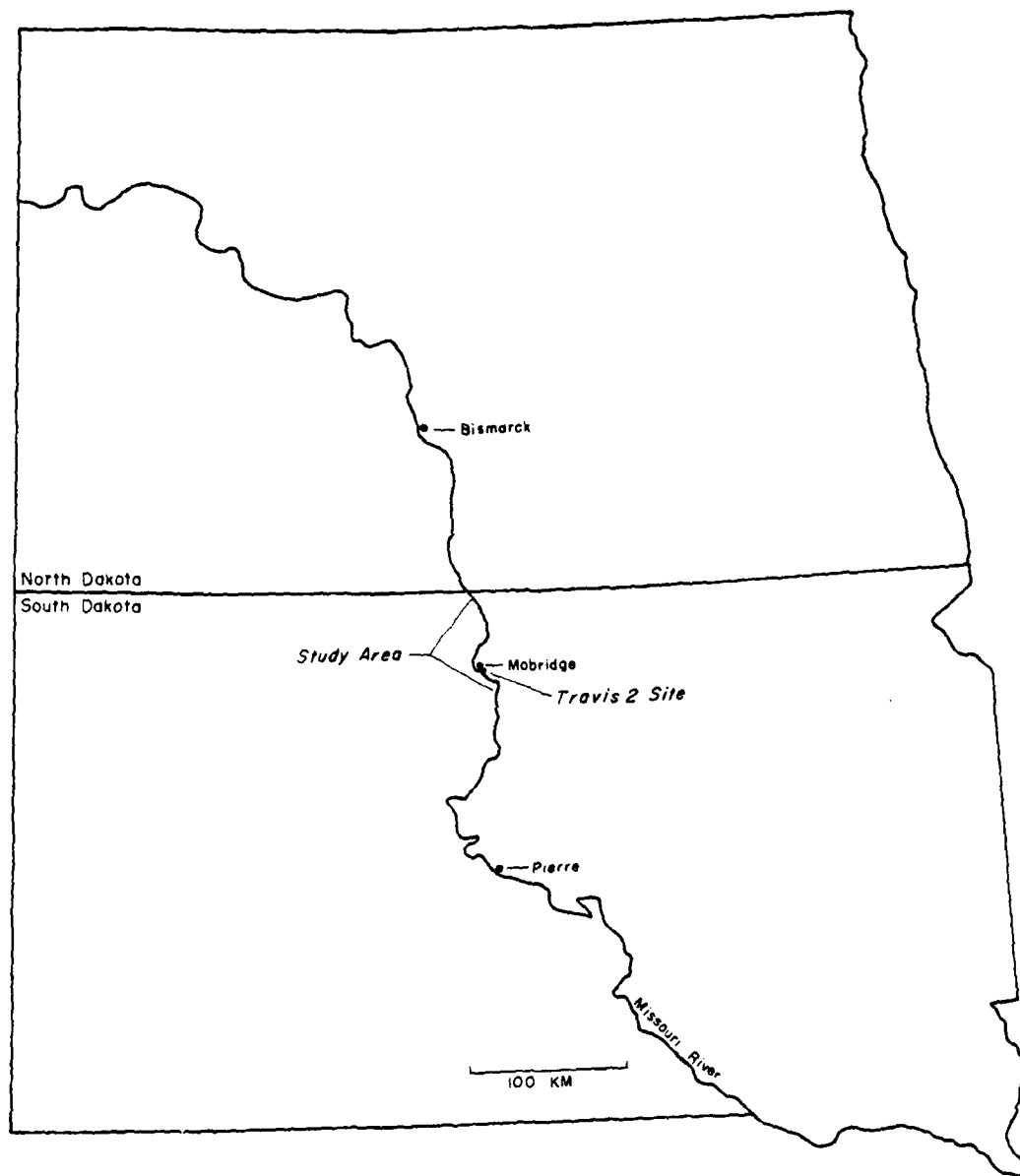


Figure 1. Location of the Travis 2 archeological site and the study area on the Oahe Reservoir (Missouri River) in north-central South Dakota.

The major points in the agreement were for the University to place a two man crew in the Mobridge area for the duration of the high water in 1978. These persons were to make controlled beach collections of newly eroded materials at the site; conduct in-the-field sorting, cataloging, and analysis of artifact collections; and to write a report including information on the beach collections, an evaluation of the erosional situation, and new recommendations for further mitigative actions by the Corps. It was anticipated that the erosional monitoring at Travis 2 would not be a full-time job for the two field personnel. During any slack time, they were to conduct limited shoreline reconnaissance in the Mobridge area at other sites which were undergoing shoreline erosion. The results of this reconnaissance were also to be incorporated in the project report.

The intent of monitoring the Travis 2 shoreline was to produce information relevant to further mitigative actions at the site but not to produce intensive analysis of all archeological materials collected. In general, the same was true for the additional shoreline reconnaissance. The intent was to treat this reconnaissance effort as a pilot project to collect data useful for planning larger-scale shoreline surveys along major tracts of the reservoir and, at the same time, to collect data relevant to the interpretation of the Travis 2 collections and other earlier collections in the area. For reference, the project Scope of Services is reproduced in Appendix A, and a facsimile of the letter proposal from the University on the project is reproduced in Appendix B.

When the project began, it was anticipated that the period of high water erosion at Travis 2, which had already begun in April, would terminate sometime during the month of August when the annual cycle of reservoir drawdown was expected to lower the pool elevation below the critical level for the site. In the original plans, therefore, the fieldwork, which began on May 22, 1978, was scheduled to terminate by mid-September. The project draft report was due approximately one month after termination of fieldwork. By late August it was apparent that the reservoir pool elevation would remain high for some time and that erosion of the site would continue well into September and October. Facing these circumstances, the original contract and research schedule were modified to allow approximately 5-6 weeks of additional monitoring time and a 45-day extension on the report due date. The University's letter proposal concerning the contract modification is reproduced in Appendix B.

Since the site was already undergoing active erosion in April, the Corps decided to take emergency action for temporary protection of the site deposits. This involved the use of layers of plastic sheeting, snowfence, and other materials to impede the destructive force of wave erosion. These materials were installed over a limited part of the site in late April, prior to the start of the UND fieldwork. The Corps stabilization effort and its effect on the site will be more fully discussed in the next section of the report.

UND field work was initiated at the site on May 22, and continued until October 31, 1978. Throughout that period a two member crew worked in the Mobridge area, dividing their time between monitoring activity at the site, related artifact analysis, and shoreline reconnaissance in the Mobridge area. On the final day of fieldwork, the UND project personnel met onsite with Omaha District Corps representatives and discussed the site condition and possible protective stabilization measures for the site.

At the same time, the nearby Walth Bay site was visited, and similar protective measures were also discussed for that site.

In an effort to provide the Omaha District with all information necessary for implementing mitigative actions as soon as possible, the project principal investigator submitted a letter report on the results of the fieldwork and erosion at the Travis 2 site in November 1978; a copy of the letter report is reproduced in Appendix C. The data provided in that letter report are covered in greater detail in the sections that follow. For a variety of reasons, preparation of the draft version of the project report has been delayed beyond the original deadline of mid-December 1978, but every effort has been made to provide all information necessary to the Omaha office so that a timely and effective mitigative plan might be put into action.

A variety of personnel have taken part in the monitoring project. Douglas Goulding, University of Colorado, served as field supervisor May 22 through August 21, 1978. He conducted much of the onsite artifact analysis and assisted in writing sections of the report dealing with Travis 2 activities and known site reconnaissance. Tim Weston, UND, served as field supervisor for the period August 22 through October 31, 1978, and also wrote sections of the report dealing with shoreline reconnaissance and other shoreline activities. Weston also provided much of the organizational effort required in preparation of the project report. John M. Kjos served as the field assistant throughout the duration of fieldwork from May through October and provided the necessary continuity to all aspects of work accomplished in Mobridge. Stanley A. Ahler served as project principal investigator and was responsible for the overall organization, implementation, and completion of the project. Ahler visited the Mobridge locality on six occasions while fieldwork was in progress and wrote major parts of Chapters I, II and IV of the report. David J. McGuire drafted Figures 2-5, 7, and 8, and Chung Ho Lee drafted Figures 1 and 6. Carolyn Helsel typed the draft and final versions of the project report and ably assisted in the timely completion of the project.

The authors are particularly grateful to a number of persons who assisted in other diverse and indirect ways on this project. The staff of the Omaha District of the Corps of Engineers helped expedite the initiation of the monitoring project and have maintained an interest in seeing proper mitigative follow-through at the Travis 2 site. The local Corps office at Mobridge provided the field crew with various types of assistance in the form of equipment, information, and additional site security throughout the duration of the fieldwork. Robert Larson of Mobridge assisted in location of adequate lab and living quarters for the field crew during their stay in Mobridge. Particular thanks and recognition are due Marion Travis of Mobridge for his continuing interest, assistance, and generosity in relation to the UND archeological activities in the area. He provided numerous types of assistance to the field crew during their stay in Mobridge, which included providing information on previously unrecorded sites and providing the use of his boat to visit sites on the west side of the reservoir. During the period between the end of the UND fieldwork at Travis 2 in 1976 and the initiation of the 1978 fieldwork, Mr. Travis has continued to make controlled artifact collections from the beach, plotting the location of most materials on grid maps of the site. He made those materials available for study and analysis throughout the summer,

and data on this significant addition to the large artifact collection from the site are incorporated in the report that follows. Without the help of Marion Travis and access to the data and materials he has patiently collected over the last several years, we would certainly have a much less adequate understanding of the Travis 2 site and the archeology in the Mobridge area, as well.

The report that follows is separated into three additional sections. Chapter II deals exclusively with fieldwork at the Travis 2 site and with analysis of the Travis 2 collections and data. Chapter III deals with shoreline reconnaissance, both at previously known sites and along previously unsurveyed sections of the reservoir. Finally, Chapter IV contains a summary of the results of the project, and provides recommendations for further work in the Mobridge area, both at the Travis 2 site and at other locations along the reservoir. Several qualifying statements can be made concerning the content and limitations of the report. As has been stated before, the main emphasis at Travis 2 has been on data collection and documentation of the site condition. Some analysis was conducted with the most recent artifact collections, but only a small bit of the analytical information is presented here. Such data are best dealt with in another format and context, preferably in a final report summarizing all archeological efforts at the locality. In a similar vein, a great deal of possible analytical information has been omitted from the sections dealing with shoreline reconnaissance. Only a general summary of data is presented on the collections from newly recorded sites and revisited sites. Such data are not thought to be particularly relevant to the goals of this project and are best treated in a more comprehensive future effort dealing with surface-collected materials from a broader area along the Oahe Reservoir. Finally, discussion of the cultural and environmental setting of the current research has not been included in the report. Adequate treatment has already been provided in the earlier report on the Travis 2 site (Ahler et al. 1977 :4-9), and also in the report on work at Jake White Bull (Ahler 1977:6-10). Repetition of that information is unnecessary here.

II. TRAVIS 2 SITE INVESTIGATIONS

Temporary Protective Measures

By April of 1978 the rising waters of the Oahe Reservoir were already encroaching on the uneroded parts of the Travis 2 site. It became apparent that the site would be partially or completely underwater long before monitoring activities could begin. The Corps of Engineers decided that emergency measures for temporary protection of at least part of the site's intact cultural deposits were in order. These measures were implemented in the last week of April by local Corps personnel. These measures were taken when the pool elevation was approximately 1614 ft msl, which is well above the southern margin of the intact site deposits. The water at that time was somewhat above the 1976 permanent datum markers and slightly above the 2.0 m arbitrary contour on the 1976 contour map (Ahler *et al.* 1977: Fig. 6) or at about the 0.5 m arbitrary contour on the 1978 contour map (Fig. 2). The emergency protective measures were completed about three weeks prior to the beginning of UND fieldwork at the site.

The emergency protection was applied in an area measuring approximately 78 m east-west (parallel to the beach line) and about 20 - 25 m north-south. The area covered, shown in Figure 2, encompassed part of the intact deposits containing the early lanceolate point complexes. The Corps began by cutting and clearing brush and a dense stand of willows which covered much of this area (Ahler *et al.* 1977: Fig. 5, top) and by clearing the area of large driftwood logs. The area was completely covered with a layer of clear sheet plastic which was then overlain by parallel strips of wood and wire snow fencing. The snow fence was rolled out from the high, undisturbed ground surface down the beach and into the water. Some spacing was left between the strips of snow fence, and the whole area was partially covered with a layer of beach sand to help keep the plastic in place. The protective layering was further stabilized by driving a large number of steel fenceposts through the snow fence into the ground, with the snow fence then wired to the fenceposts at the ground surface. This protective matting was extended out into the water as far as possible but did not completely reach the low 1976 cutbank line; therefore, it did not completely cover the known limits of the early intact cultural zone. In order to keep the underwater parts of the mat from floating and moving about in wave action, several sections of steel railroad rail were placed over the ends of the snow fence strips under water. Finally, the upper end of the snow fence and plastic mat, which was located on the undisturbed high terrace surface above the 1975 cutbank, was secured beneath several large driftwood logs. Since the time of its original placement, the protective mat has not been attended, maintained, or removed.

Interim Fieldwork at Travis 2

During the period from the end of the UND fieldwork at the Travis 2 site in October 1976 to the beginning of renewed monitoring activities in May 1978, Marion Travis of Mobridge made intensive and controlled surface collections from the site. Throughout this period of about 18 months the reservoir pool never reached the height of the intact beach

site deposits; therefore, the materials that were collected by Mr. Travis were previously eroded artifacts which were occasionally exposed in the constantly shifting beach sands.

A number of grid stakes were left in place following the 1976 UND test excavations. Marion Travis used these as a means of locating individual artifacts on the beach. He kept a catalog which contained data on artifact numbers, grid locations, outline drawings, and collection dates. Mr. Travis collected and cataloged all recognizable tool forms in this manner and also made complete collections of other types of cultural debris which consisted primarily of cores, core-tools, and chipped stone flaking debris. Following the advice of S. Ahler, these latter materials were collected without control for provenience within the site. In May of 1977, Ahler sent copies of gridded site maps to Marion Travis to aid in his controlled beach collections. Mr. Travis subsequently used these maps to plot all spatially located beach collected stone tools. During the period of most recent fieldwork in Mobridge, Mr. Travis made his beach collection, maps, notes and field catalog available to the UND project crew for their use and analysis. All materials and data in this interim collection were integrated with the artifact analysis and discussion of artifact distribution that follows in a later section.

UND Fieldwork at Travis 2

UND began its monitoring activities at the site on May 22, 1978. At that time, the reservoir pool was at ca. 1615.3 ft msl, and the majority of the known intact part of the site was already underwater. The water had risen so rapidly up until that time, however, that it appeared that little serious erosional damage had been done to the site.

The first task in the monitoring activities was to check the original site grid and reestablish a network of grid stakes which would allow spatially controlled beach collections. During the 1976 work the site was overlain by an arbitrary metric grid in which grid north was oriented 25 degrees east of magnetic north, and in which grid coordinates were measured north and west of an arbitrary datum well to the southeast of the site. At the end of the 1976 season, two grid points were marked by 1-inch-diameter pipe, 1 m in length, which was driven vertically into the ground; exposed pipe was 20 cm in length and was painted red (Ahler *et al.* 1977:17). It was known that the westernmost of these pipe markers had on one occasion in 1977 been pulled from the ground by visitors but had subsequently been replaced in its original hole. When fieldwork began in May 1978, both of the pipe grid markers were underwater, which made it difficult to check their proper location and placement. Upon considerable rechecking, it did become apparent that these pipes were not precisely in their original locations as shown on the original site grid. Neither the distance nor the azimuth between them were precisely as expected. In retrospect, it is difficult to establish the precise source of error at present; apparently it is due in part to an error in their original placement in 1976.

Knowing that there would be slight discrepancies between the 1978 and the original 1976 grids, the site was regridded by assuming that the westernmost pipe marker actually stood at grid point 323NW450 and using

the line between the two pipe markers as the axis for the east-west grid lines. Using these procedures, the site was regrided and restaked with wooden stakes at 10 m east-west intervals and at 5 m north-south intervals. The grid thus established was used for all 1978 fieldwork; it may diverge from the 1976 grid by up to 20 cm in east-west placement and appears to be oriented ca. 27 degrees east of north. The 1978 grid was further marked for future reference by placement of two hopefully permanent, datum points at grid points 355NW430 and 355NW451, out of the normal inundation range of the Oahe Reservoir (Fig. 2). The grid markers consist of 3 ft long sections of $\frac{1}{2}$ in steel reinforcing rod which was driven vertically into the ground with about 1 in protruding above the ground. The top of each rod is encased in concrete upon which is marked "UNDAR" and the grid point number "355NW430" or "355NW451".

Controlled surface collections were made from the site by the UND crew throughout the duration of the monitoring project. During the first half of the field season, intensive daily collection episodes were found to not be necessary or productive. Most of the intact part of the site was completely underwater, and the exposure of new artifacts on the beach occurred infrequently. During this period, considerable effort was expended on shoreline examination at other sites along the reservoir and on laboratory work related to materials previously collected by Marion Travis. During the latter part of the field season when the reservoir was continually dropping and when increasingly larger beach areas were being exposed, the surface collection became a major task that required several days effort each week. Throughout the duration of the field season, the site was visited at least on a daily basis to check for unexpected erosional developments and for vandalism.

The UND controlled beach collections were made according to the reestablished grid. All recognizable cultural material, excluding obviously modern debris, was located on the beach through intensive visual examination and was collected according to spatial location. When the water was still, the shallow lake bottom was also examined, and artifacts were collected from the water. A description of all collected materials was entered in a field catalog which was used to assign sequential catalog numbers to artifacts and to record the collection locus, type of artifact, nature of the surface upon which it was found, the collector, and date of collection. Locations of all recognizable stone tools (projectile points, scrapers, bifaces, etc.) were noted to the nearest 0.1 m in the site grid system. All other collected materials (chipped stone flaking debris, fire-cracked rock, sherds, faunal remains, shell, and flakable pieces of raw material) were collected according to 5 m (N-S) by 10 m (E-W) rectangular grid blocks, with the block designation made according to the coordinates of the southeastern corner.

An effort was made to document the progress of underwater erosion that might have been taking place throughout the summer. Toward this end, four steel fenceposts were driven part way into the water-covered, intact parts of the site; a notation was made of the exact length of fencepost protruding above the lake bottom. The idea was to periodically record (after major storms, wave action, etc.) any changes in the post height above the bottom of the lake, thereby measuring any detectable erosion or deposition of lake bottom sediments. This plan, however, proved unsuccessful because the monitoring posts were dislodged on several occasions by poundings from wave-carried logs, driftwood and other debris.

The best information available on the nature and condition of the Travis 2 site deposits at the time immediately prior to high-water encroachment is in the contour map and coring information collected in the 1976 fieldwork and presented in the 1977 report (Ahler *et al.* 1977: 14-23). Little wave-induced erosion occurred during 1977 and the only major changes in the site surface contours during that period were likely due to movement of windblown sand on the beach surface. Since the effort to monitor changes in the beach deposits during high-water conditions proved to be a failure, the best documentation of erosional change available was through a combination of detailed remapping of the ground surface and recoring of the subsurface deposits immediately following lake drawdown from the site.

The site was contour mapped on October 30 and 31, 1978, the last days of the UND field season. Using a transit level and metric rod, elevation information was recorded from grid points 270 west to 500 west and from the 345 north line southward to the water's edge. Elevation data were generally recorded on grid points at 5 m north-south intervals and 10 m east-west intervals and at the step above and below the high cutbank on 10 m east-west intervals. Elevations were recorded to 0.01 m at the existing ground surface, regardless of the depth of beach sand or other protective debris.

To provide yet a more accurate picture of the extent and distribution of subsurface deposits, a coring tool was used to probe the beach in a systematic manner. The test excavation at the site in 1976 revealed three major stratigraphic units in the part of the site which produced the earliest cultural remains. From the eroded surface downward these were: Unit A, a dark, grayish brown, sandy silt or clayey silt; Unit B, a discontinuous, brown sand; and Unit C, a variable unit, generally of grayish brown, sand-silt-clay, distinctive for its lighter color and higher clay content (Ahler *et al.* 1977: 22-31). It was determined that the in situ cultural materials of most interest were concentrated at the contact between Unit A and whatever unit underlay it - Unit B or Unit C (Ahler *et al.* 1977:45). In the coring effort, the primary interest was in determining the presence or absence and thickness of the Unit A silty deposit. Coring was done with a 1 in diameter hand core tool which could reach depths up to a meter below the surface. Cores were taken at approximately 5 m or closer north-south intervals on each 10 m west grid line from 360W to 490W. Data were recorded on the depth of overlying, disturbed sand and trash, the thickness of Unit A and Unit B and the depth to Unit C if encountered or detectable. This work was conducted on October 31, 1978, the last day of fieldwork, long after the water had receded from the major site deposits.

On or about Sept. 15-19, 1978, the site was visited by vandals apparently intent upon discovering collectable artifacts. Seven roughly circular potholes were dug in the site, all between the 420W line and the 440W line. The location of the potholes indicates that the people responsible were somewhat familiar with the general structure of the site. Inspection of pothole excavations revealed that damage to the intact deposits was either superficial or negligible. Within a week after this episode of vandalism, the local Corps office posted the main site area with several signs requesting no trespassing on government property. The site was more frequently patrolled following this episode, and no further instances of vandalism occurred. At no time during the summer was any unauthorized person observed making artifact collections; however, after

the water receded and a beach reappeared, footprints and all-terrain-vehicle tracks did indicate that occasional visitors had crossed the site area. The UND work at the site did attract considerable curiosity in the local community, and the episode of vandalism substantiates the delicate situation and the need for protective measures which will guard against threats from several directions.

Erosional Results at Travis 2

The results of shoreline erosion at the Travis 2 site can be illustrated in part by the contour map made after the waters of the Oahe Reservoir had receded from the site surface (Fig. 2). This map indicates the high water line reached by the reservoir on July 12, 1978 (el 1616.18 ft msl). The map shows that most of the intact site deposits were completely underwater and subject to severe erosion. It also shows that the high water in 1978 encroached on the high cutbank in the eastern part of the site, with active cutbank erosion occurring east of the 330W line and around the eastern point of the site. This cutbank is actually low in height (ca. 1 m or less) and erosion occurred only during periods of high wave action from windstorms. This particular eastern extremity of the site was not fully mapped in 1976, so an exact determination of the cutbank recession is difficult to make; it is estimated at a maximum of 2-3 m since 1976.

Comparison of the 1978 contour map (Fig. 2) and the 1976 contour map (Ahler *et al.* 1977: Fig. 6) indicates that major topographic changes in the beach are in the form of a general smoothing and straightening of beach contours in the area from 430W to 490W where small benches of uneroded material once jutted out toward the reservoir. Also, the low 1976 cutbank that was relatively continuous and clear in the 1976 fieldwork (Ahler *et al.* 1977: Fig. 5-8) has been almost entirely obliterated by the 1978 erosion. These particular changes are of some significance since they occur in the part of the site that was thought to contain the earliest cultural deposits. Such changes are well illustrated in the plan map, which show the results of subsurface coring operations (Fig. 3) and in the north-south beach cross sections, which are through the same area (Fig. 4). In particular, the profiles or cross sections show that the 1976 cutbank, which was in most cases 30-40 cm in height, has been completely rounded off and smoothly contoured to the general slope of the beach.

A detailed comparison of the 1976 and 1978 coring data is illustrated in Figure 3. This figure summarizes many of the results of 1978 erosional impacts on the site in the area from 370W to 500W.

Several pertinent observations can be made. (1) The part of the early subsurface deposits most severely affected by 1978 erosion is along the southern margin of the previously uneroded area. The data indicate that approximately 1-2 lateral meters (north-south) of the intact deposits have been completely removed by erosion along this southern margin area. Also, throughout the southern half of the intact zone, ca. 20-30 vertical cm of the overlying Unit A, silty deposits, have been removed. (2) A very clear limit to the intact sediments can now be established between the 480W and 490W lines, with no Unit A or Unit B materials occurring west of there. (3) To the east, the Unit A deposits were followed farther

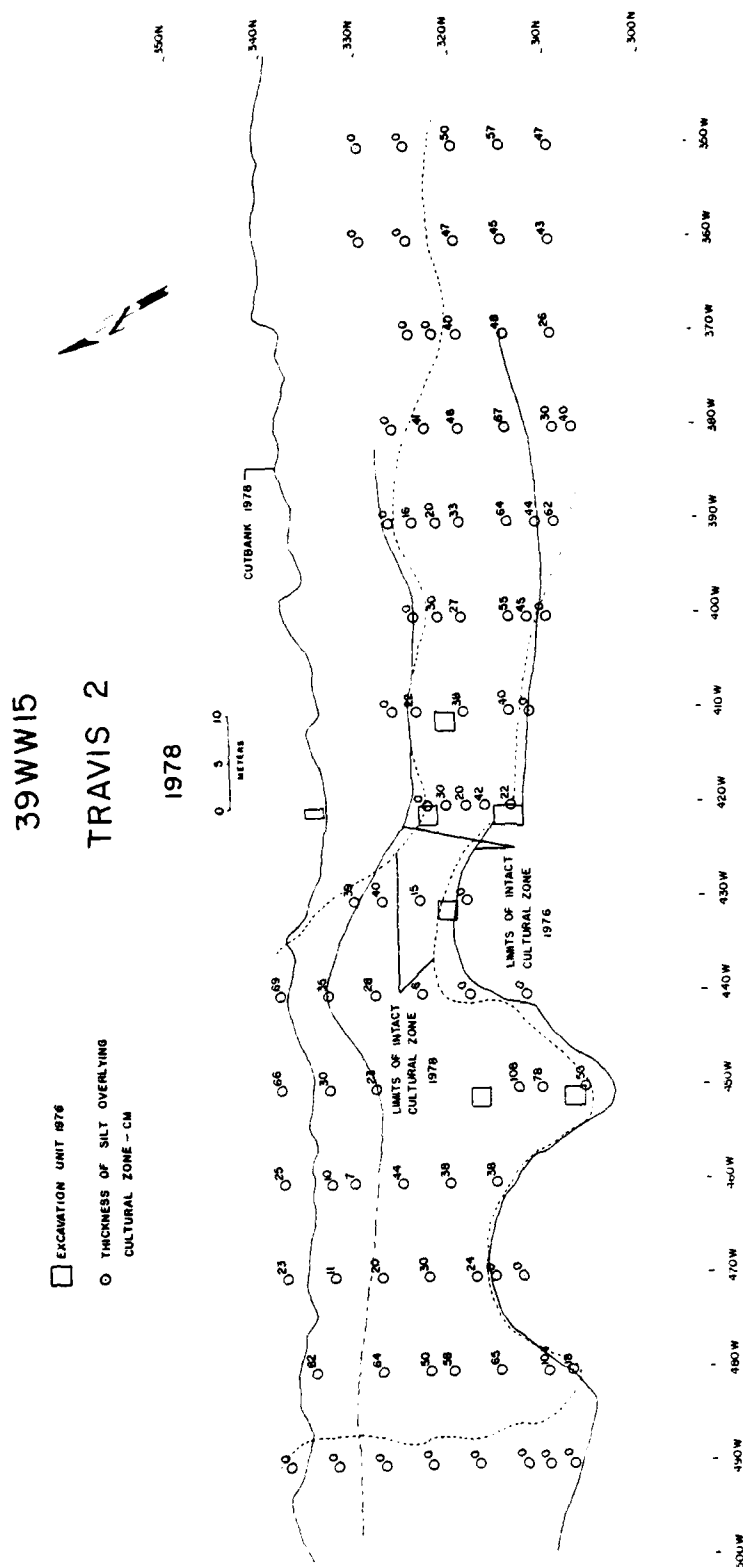


Figure 3. Plan map of the western part of the Travis 2 site showing the extent and depth of the intact early cultural zone as determined from coring information at the end of the 1978 field season. Compare with 1976 data in Figure 7 (Ahler et al. 1977:19).

TRAVIS 2 PROFILES

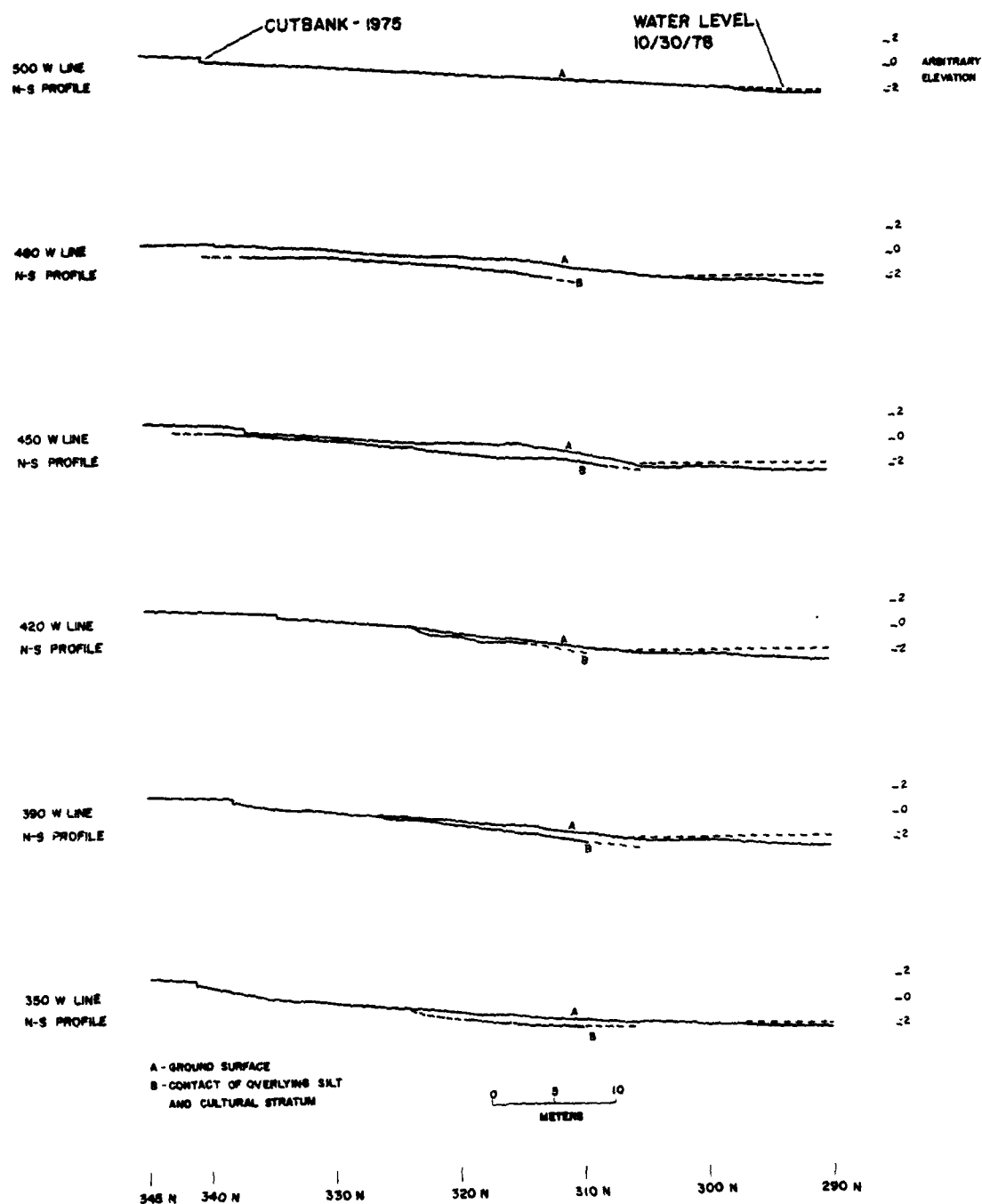


Figure 4. North-south profiles of the eroded beach surface of the Travis 2 site at the end of the 1978 field season.

than they were in 1976, and it appears that the Unit A deposits thicken and dip rather sharply to the east. Without test excavations in this area between 350W and 400W, it is unknown if significant cultural remains are to be found intact at the lower contact of Unit A as they are between 400W and 460W. (4) The northern limits of the intact Unit A/Unit B-C contact was relatively unchanged in position from about 380W to 420W. Throughout this area the Unit A sediments feather out to the north and the exact limit becomes very difficult to define precisely. (5) Between 420W and 480W, it now appears that the Unit A deposits may remain intact to the north and may extend northward beyond the high 1975 cutbank. This continuation was not defined in the 1976 coring effort due to the difficulty of investigating this part of the site which was under very thick windblown sand deposits. The 1978 core data throughout this area are somewhat atypical of the generalized site stratigraphy. It is certain that a clear picture of subsurface deposits in this area can be gained only from larger-scale trench excavation.

The results of the erosional investigations can be summarized as follows. The most severe erosion was on the southern and western margins of the area of intact early deposits where 1-2 m of the southern margin were completely removed, where a definite western margin of intact deposits was formed, and where 20-30 cm of the protective silt cover over the cultural zone was removed. A more intensive and extensive coring effort revealed, however, that the intact deposits may extend farther to the north than thought in 1976 and may extend to the east as well. The eastern extension of the lanceolate cultural zone is confirmed to some extent by the results of controlled artifact collections which are discussed later. The net effect of erosion and continuing investigations has been to document the removal of 50-60 m² of previously intact early cultural deposits and to suggest that the horizontal extent of the intact zone may have been somewhat larger than originally thought. Based on the 1976 work, it was estimated that the intact lanceolate zone of cultural deposits was minimally 600 m² in extent, and probably as large as 1200 m². The 1978 data clearly reveal that a part of that zone of interest has been removed. The erosional removal, however, is estimated to reflect no more than a maximum of 10% reduction in the areal extent of the early deposits, meaning that the possible mitigative situation facing the Corps of Engineers is, as a whole, little changed. This picture can be further refined using data from the controlled surface collections.

Travis 2 Beach Collections

Where possible, both the Marion Travis interim collection and the UND collection are dealt with in the discussion of surface collected artifacts from the Travis 2 site. Table 1 provides a summary of general artifact class frequencies represented in the two beach collections. As can be seen in the table, chipped stone debris and chipped stone tools are the most frequently occurring item.

Stone tools were given the most attention in analyses; a variety of interval, ordinal, and nominal scaled data were recorded for each artifact (Table 2). This was done in accordance with conventions and formats used and developed for previous studies of several stone artifact assemblages in the Middle Missouri subarea (see Ahler 1975a, 1975b,

Table 1. Summary data on general artifact class frequencies in the 1976-1978 collections from the Travis 2 site.

Artifact Class	M. Travis Interim Collection	UND Collection	Total
Chipped stone tools	211	136	347
Chipped stone flaking debris	present	746	746+
Fire-cracked rock	present	29	29+
Faunal debris	present	75	75+
Ceramics	present	8	8+
Total	211+	994	1205+

Table 2. List of variables or variable classes observed and recorded for all stone tools in the 1976-1978 beach collections from the Travis 2 site.

-
-
1. Descriptive category and computer number.
 2. Interval-scaled variables recording data on size, shape, weight, and degree of alteration.
 3. Functional class.
 4. Technological class.
 5. Morphological or stylistic class.
 6. Use-phase class.
 7. Haft mode.
 8. Color.
 9. Raw material type.
 10. Presence of burning.
 11. Degree of patination.
 12. Presence of differential patination.
 13. Degree of natural weathering or abrasion.
 14. Type and location of fractures.
 15. Presence of resharpening.
 16. Presence of recycling to a second function.
 17. Multiple functions served by the same artifact.
 18. Presence and type of culturally derived residues.
 19. Presence of carbonate encrustation.
 20. Presence of cortex.
 21. Presence and type of flaking patterns for specific tool classes.
 22. Degree of haft element dulling for specific tool classes.
 23. Transverse cross section.
 24. Provenience or archeological context.
 25. Recovery procedure.
 26. Original or field catalog number.
-
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1977, n.d.; Ahler et al. 1977). Two computer cards were used to record data on each stone tool; all data remain on file at the Department of Anthropology and Archeology, UND. These data are in a format compatible with information recorded on the 1976 and previous collections from Travis 2, so a systematic analysis of these materials will be possible sometime in the future. During the summer field session, these data were coded on the Marion Travis interim collection, and about 135 black and white photographs and 19 color photographs were taken of selected stone tools in that collection.

Little more detailed analytical information than necessary will be presented here to investigate the apparent structure of the Travis 2 site. Since a functional categorization of stone tools is the most easily understood classificatory approach used with stone artifacts, Table 3 provides a breakdown of each beach collection according to generalized functional groupings. All artifacts in the Marion Travis collection have been returned to him for storage and curation in Mobridge. All artifacts listed in Tables 1 and 3 in the UND collections remain in curation at the University of North Dakota in Grand Forks.

To aid in the investigation of the subsurface structure of the Travis 2 site, Table 4 provides a breakdown of major artifact classes according to 10 m wide east-west collection units on the beach surface. Frequencies are lumped without regard to north-south provenience. The data provide interesting information on the number and location of buried components at the site as well as information on the effectiveness of the temporary protective measures undertaken by the Corps. Data in this table can be viewed in conjunction with Figure 5 which provides a plot of the approximate horizontal locations of stone tools from the beach surface. In making up this figure, a small number of artifacts which were found outside the grid coordinates shown have been omitted. Artifact locations are plotted to the nearest 0.1 m when provenience data permitted; if a tool was provenienced to a 5 m by 10 m collection unit, the tool was plotted in the approximate center of the rectangular collection block.

In Marion Travis' collection, stone tools are concentrated in two main areas, from 350W to 370W and from about 440W to 490W. Due to a lack of grid stakes in place in the eastern part of the site when Mr. Travis was monitoring the beach, few artifacts were plotted by him east of the 350W line. In addition, he collected material from the southeastern point of the site in an area exposed only during the low water level. This is designated as "SE flat" in the table (estimated grid coordinates of ca. 260NW250). In the UND stone tool data, the greatest concentration of tools was in the 290W to 310W area, and lessor concentrations occurred in a broad area from about 350W to 410W and to an even lessor degree from 460W to 500W. Flaking debris to some extent showed a similar pattern of distribution in the UND collections. A high concentration was present between 290W and 310W with lessor densities and poorly defined concentrations to the west. Fire-cracked rock occurred in two distinct concentrations probably very near in situ locations. The first was between 290W and 310W and from 320N to 330N. The highest peak of stone tools and debris was found in nearly the same location. The second concentration was much farther to the east on the point of land on the southeast corner of the site. A dense concentration of eight burned stones were collected in a 50 cm diameter area centered at 305.6NW226.7.

Table 3. General functional class frequencies according to collection for all stone tools in 1976-1978 beach collections from the Travis 2 site.

Functional Class	M. Travis Collection	UND Collection	Total
01 - Projectile points	31	23	54
02 - Perforators	2	1	3
07, 10, 15, 44 - Patterned bifacial cutting tools	10	13	23
06, 16, 20 - Hafted scrapers	10	6	16
08 - Small, crude bifacial tools	23	13	36
09, 14, 27, 31, 46 - Heavy core-tools	64	38	102
21 - Cores	26	26	52
25,28 - Bipolar tools	7	4	11
19, 30 - Beak, gravers	2	0	2
18, 22, 23, 45 - Other retouched and utilized flake tools	35	12	47
29 - Hammerstones	1	0	1
Total	211	136	347

Table 4. East-west distribution of controlled artifact collections from the beach of the Travis 2 site, 1976-1978.

East-West Grid Unit	Chipped Stone Tools (M. Travis)	Chipped Stone Tools (UND)	Chipped Stone Debris (UND)	Fire- Cracked Rock (UND)	Faunal Debris (UND)	Ceramics (UND)	Total
SE flat	12	-	-	-	-	-	12
E of 230W	-	1	3	9	1	1	15
230W-240W	-	2	1	1	-	-	4
240W-250W	-	-	6	-	-	-	6
250W-260W	-	3	3	-	-	-	6
260W-270W	-	3	18	-	-	2	23
270W-280W	-	5	78	3	1	2	89
280W-290W	-	3	25	-	-	-	28
290W-300W	-	19	148	2	19	1	189
300W-310W	-	13	81	9	37	-	140
310W-320W	-	1	33	-	6	-	40
320W-330W	-	8	45	1	4	-	58
330W-340W	-	3	45	1	-	-	49
340W-350W	-	1	18	-	2	-	21
350W-360W	5	12	23	-	1	1	42
360W-370W	4	3	19	-	-	-	26
370W-380W	1	7	10	-	1	-	19
380W-390W	-	2	15	1	-	-	18
390W-400W	-	7	22	-	-	-	29
400W-410W	-	8	26	1	-	-	35
410W-420W	1	1	10	-	-	-	12
420W-430W	3	1	5	-	1	-	10
430W-440W	-	3	2	-	-	-	5
440W-450W	5	4	6	-	-	-	15
450W-460W	7	-	4	-	-	-	11
460W-470W	11	3	3	-	-	-	17
470W-480W	3	4	4	-	-	-	11
480W-490W	9	6	6	1	1	-	23
490W-500W	-	3	19	-	-	-	22

Table 4. Continued

East-West Grid Unit	Chipped Stone Tools (M. Travis)	Chipped Stone Tools (UND)	Chipped Stone Debris (UND)	Fire- Cracked Rock (UND)	Faunal Debris (UND)	Ceramics (UND)	Total
500W-510W	-	-	10	-	-	-	10
510W-520W	1	1	4	-	-	-	6
520W-530W	-	1	4	-	-	-	5
530W-540W	-	-	2	-	-	-	2
Total Located Artifacts	62	128	698	29	74	7	998
Unlocated Artifacts	149	8	48	-	1	1	207
Total	211	136	746	29	75	8	1205

Nearly all faunal debris collected from the site appeared to be of considerable age. The debris was highly weathered and had a chalky texture and a common carbonate encrustation which probably resulted from lengthy burial in the ground. The bone has not been specifically identified, but both bison and smaller mammalian species appear to be represented. A single concentration of bone material is reflected in the UND data; approximately 45 fragments of bone were recovered in situ at locations concentrated between 296W and 304W and from 317N to 322N. The fragments were eroding from the sloping surface of what appeared to be Unit A, silty deposits. This bone concentration is in the same area that the highest frequencies of lithic materials occur. Finally, a small number of ceramic sherds were recovered; most were found near the eroding, low cutbank at the southeastern tip of the site (260W to 280W and 320N to 335N).

Projectile points were examined in greater detail in an effort to further differentiate all possible components represented in the eroded beach deposits. The variables of morphological class and raw material type were examined in particular. A wide variety of point types or morphological classes are represented in the beach collection. Table 5 provides a summary of both the morphological classification and the east-west beach location of projectiles. The class names and numbers are taken from the earlier report on the Travis 2 work (Ahler *et al.* 1977: 63-77) where detailed descriptions of various types and references to relevant literature are provided. The reader is referred to that report for a more complete description of projectile point morphologies and for illustrated examples.

In general, the projectile points can be broken down into three chronologically significant groups which can then be used to further investigate spatial variability on the beach. The groups as shown in Table 5 are arrowpoints; Pre-Plains Village, preceramic stemmed and notched dart-sized points; and late Paleo-Indian lanceolate specimens. The majority of specimens from the beach are lanceolate in form, conforming to the Type 26, Angostura-like specimens previously described from the site (Ahler *et al.* 1977:72-77). Figure 5 indicates the location of lanceolate points or point fragments on the beach at Travis 2. This map shows a clear segregation of such early specimens west of the 350W line with two subconcentrations possibly present from 350W to 360W and from 420W to 500W. Table 6 provides a cross tabulation of general classes of projectiles (lanceolate vs non-lanceolate) by general east-west grid provenience (east and west of the 350W grid line), confirming the highly nonrandom concentration of lanceolate materials in the part of the site west of 350W.

This segmentation of the site into two main components east and west of the 350W line comes as no surprise since previous subjective observations of artifact distributions on the beach had indicated spatially separate components. Taken together with coring data and distributional data on other classes of artifacts, the data suggest that the areal extent of the lanceolate component may extend somewhat farther to the east than had been previously suspected. The exact chronological placement of the heavy concentration of artifacts farther to the east, from 290W to 310W, remains difficult to determine, yet may be related to a relatively early preceramic occupation characterized by medium-sized, side-notched points very similar to those found at the Simonsen site in

Table 5. Projectile point morphological class frequencies represented in the 1976-1978 Travis 2 beach collections.

Morphological Class	Frequency	East-West Grid Units
<u>Plains Village arrowpoints</u>		
3. Fragments not further classifiable.	1	SE flat (1)
<u>Notched and Stemmed, Pre-Plains Village, Post Paleo-Indian</u>		
5. Broad, triangular, corner-notched.	1	SE flat (1)
7. Bilobed, bifurcate base.	2	290W-300W (1) 460W-470W (1)
29. Besant-like, shallow side-notched.	1	400W-410W (1)
13. Avonlea (?), small with diminutive side-notches.	2	SE flat (1) 350W-360W (1)
17. Simonsen, side-notched with U-shaped notches.	5	SE flat (1) 290W-300W (1) 300W-310W (1) 470W-480W (1) 490W-500W (1)
18. McKean, lanceolate.	1	SE flat (1)
23. Delong, unnotched triangular.	2	290W-300W (1) Unknown (1)
9. Fragments, not further classifiable.	2	290W-300W (1) 330W-340W (1)
<u>Lanceolate, Late Paleo-Indian</u>		
25. Contracting haft element, basally notched.	1	440W-450W (1)
26. Angostura-like, contracting haft element.	19	SE flat (1) 350W-360W (1) 420W-430W (2) 430W-440W (1) 440W-450W (2) 450W-460W (3) 460W-470W (3) 470W-480W (2) 480W-490W (2) 490W-500W (1) Unknown (1)
28. Fragments, not further classifiable.	6	350W-360W (2) 450W-460W (2) 470W-480W (1) Unknown (1)

Table 5. Continued

Morphological Class	Frequency	East-West Grid Units
<u>Other</u>		
34, 36, 38. Various unclassifiable fragments.	11	
Total	54	

Table 6. Cross tabulation of general projectile point morphological classes by general east-west provenience on the beach of the Travis 2 site.

General Morphological Class	Provenience		Total
	East of 350W line	West of 350W line	
Non-Lanceolate Plains Village or Preceramic	11	5	16
Lanceolate, Late Paleo-Indian	1	23	24
Total	12	28	40

$$\chi^2=19.07; df=1; p=<0.001$$

Iowa (Aggogino and Frankforter 1960) and in the earliest cultural horizon at the Medicine Crow site in South Dakota (Ahler n.d.). Two such artifacts are found in the general area of that concentration on the beach at Travis 2, and these specimens are thought to date between 7,000 and 8,000 years B.P. The clear concentration of cultural remains to the east suggests the need for mitigative considerations (excavation or protection?) in that area.

In the previous work at Travis 2, the early lanceolate point types were seen to have a high incidence of Knife River Flint in comparison to the variety of raw materials used for later point styles (Ahler *et al.* 1977:66). In an effort to further examine the relationship variation in raw material selection to spatial variability on the beach, cross tabulation and chi square analyses were done for the following variable pairs: projectile point raw material by provenience east and west of 350W; all tool raw materials by provenience east and west of 350W; and flaking debris raw material by provenience east and west of 350W. The first two tests (data not shown) show a random relationship (at $p = 0.05$) between tool raw material and east-west provenience. The final analysis (data not shown) indicates a significant ($p = 0.02$), but not particularly strong tendency (Cramer's $V = 0.013$, with $x^2 = 8.73$, $df = 2$, and $n = 692$) for Knife River Flint flaking debris to be concentrated west of the 350W line.

To summarize, two reasonably distinct and well-defined cultural components are represented on the beach at Travis 2. The first is most heavily concentrated in the eastern part of the site between grid lines 590W and 310W and adjacent areas and is characterized by high densities of lithic debris, stone tools, fire-cracked rock and faunal remains eroding from the sloping beach surface. A number of typologically distinct projectile points occur throughout this part of the site; it appears that this component is definitely preceramic in age and probably relates to the middle or early part of the Foraging or Plains Archaic Period. This area underwent intensive erosion in 1978; only test excavations will reveal its present condition.

The second concentration of materials marking an earlier component at the site occurs in a much more diffuse area from about 350W to 500W. This component is characterized by moderate frequencies of stone tools and flaking debris; there is little evidence of dense concentrations of fire-cracked rock or preserved faunal remains. This component is distinguished by the occurrence of a single class of lanceolate projectile point resembling the Angostura point which is generally found in sites farther west (Wheeler n.d.). This is the component that has received the greatest attention at the Travis 2 site. This component was test excavated in 1976 and the limits of deposits containing these cultural materials have been fairly well defined through both excavations and coring operations. The erosional episode of 1978 may have removed as much as 10% of the areal extent of this cultural zone, but it is clear that a large area of this cultural deposit remains intact. Present information indicates that the intact, early cultural deposits cover an area measuring at least 10-15 m (north-south) by at least 40 m and may measure as much as 130 m (east-west) based on the lateral distribution of lanceolate projectiles on the beach.

A few comments are in order concerning the effectiveness and fate

of the temporary protective matting of sheet plastic, snowfence, sand fenceposts, and railroad rails installed by the Corps over parts of the intact lanceolate cultural zone at the site. This protective matting was partially covered by the reservoir during most of the summer; the lower, lakeward half of this matting underwent a severe mangling from wave action on several occasions. When the water receded from the protected area, nearly the entire lower half of the protective mat had been destroyed. This destruction was caused by waves and huge driftwood logs that pounded and dislodged the steel rails and fence posts which held the snow fence in place. The snowfence and plastic were then washed up in a tangled mess along the shoreline. In late October when fieldwork was terminated the remnants of the protective mat were covered by a 10-30 cm thick layer of shifting windblown sand. These remnants will certainly have to be removed from the site surface prior to any meaningful mitigative efforts at the locality.

Even though the protective mat did not withstand the waves and high water particularly well, it does appear that the device, used in combination with a few remaining willows and a heavy willow root mat in the same area, did provide some protection to the intact cultural deposits. Even though water covered almost the entire extent of the intact cultural zone, it appears that severe erosion occurred only along the lowermost, lakeward margin of this area. While the protective materials were displaced and tangled, this tangle of materials trapped floating logs and other debris, these breaking the destructive force of incoming waves so that additional erosion did not occur at the extreme high water line. Also, the distribution of surface collected artifacts from the beach (Figure 5) indicates that the majority of artifacts from the general area protected by the mat (Fig. 2) were collected by Mr. Travis in the interim period of low water prior to installation of protective measures. The UND crew found relatively few stone tools and little debris in this area (410W to 490W; Table 4) either during or after the period of inundation. Some of the tools collected by UND in this area were found in the loose, displaced beach sand that was placed by the Corps on the top of the mat. Some of the tools collected were not necessarily eroded from that area; this further reduced the evidence of erosional disturbance in that part of the site.

We do not want to overemphasize the benefits of the protective measures that were taken. The measures used were clearly temporary and subject to disruption and destruction by wave action. The tangled mess that now remains on the beach is blanketed by a heavy layer of windblown sand and requires an intensive cleanup effort. This must be regarded as a clear disadvantage of the approach used. While this point is speculative, it is possible that the uncut stand of dense willows present prior to the field season might have also decreased the erosional effects at the shoreline.

III. OTHER RECONNAISSANCE EFFORTS

Introduction

Following the guidelines outlined in the Scope of Services, (Appendix A), time requirements for monitoring the Travis 2 site allowed reconnaissance work on other Corps of Engineers property along the Oahe Reservoir. These efforts were further divided and directed toward two goals: (1) monitoring of significant, previously recorded archeological sites, and (2) shoreline survey work (primarily in the area between Walth Bay and Mobridge).

The purposes of monitoring the previously recorded sites in the area were to document their condition, make controlled collections (in some instances), and collect data useful for making recommendations for future work or preservation.

The shoreline survey was conducted in order to locate and record new archeological sites which might be eroding into the reservoir and hence be in need of investigation or preservation. The major effort was directed toward survey of the area between Walth Bay and Mobridge. In addition to gathering data on new sites, it was hoped that data on shoreline survey time requirements and productivity at high pool elevations could be gathered. Another goal of the Walth Bay to Mobridge survey was to locate geologic exposures which might aid in the interpretation of early occupation in the area.

Monitoring of Previously Recorded Sites

The Jake White Bull site (39C06) and the Walth Bay site (39WW203) were previously recorded sites of major significance; therefore, they were the most intensively examined. Other previously recorded sites examined in the monitoring study include the Lower Grand or Davis site (39C014); the Helb site (39CA208); the Jones Village site (39CA3); the Potts site (39C019); several sites in the immediate vicinity of Potts (probably 39C017 and 39C0202); the Molstad site (39DW234); and the Leavenworth site (39C09)(see Fig. 6).

Jake White Bull (39C06)

The Jake White Bull site, an earthlodge village located on the right bank of the Missouri River (Fig. 6), has been taxonomically assigned to the Extended Variant of the Middle Missouri Tradition. A detailed description of the site and its natural and cultural environment is found in Ahler (1977). This research report was funded by the Corps of Engineers and was performed at the site by a UND research team in the fall of 1976.

The 1976 research at the site provided a base for the 1978 monitoring study. In 1976, a grid was established (with permanent datums), and maps of the site were prepared including the cutbank which forms the eastern margin of the site. Stratigraphic profiles of the cutbank were drawn and limited test excavations provided information as to the nature and extent of the cultural deposits. Also, arbitrary beach collection units were established.

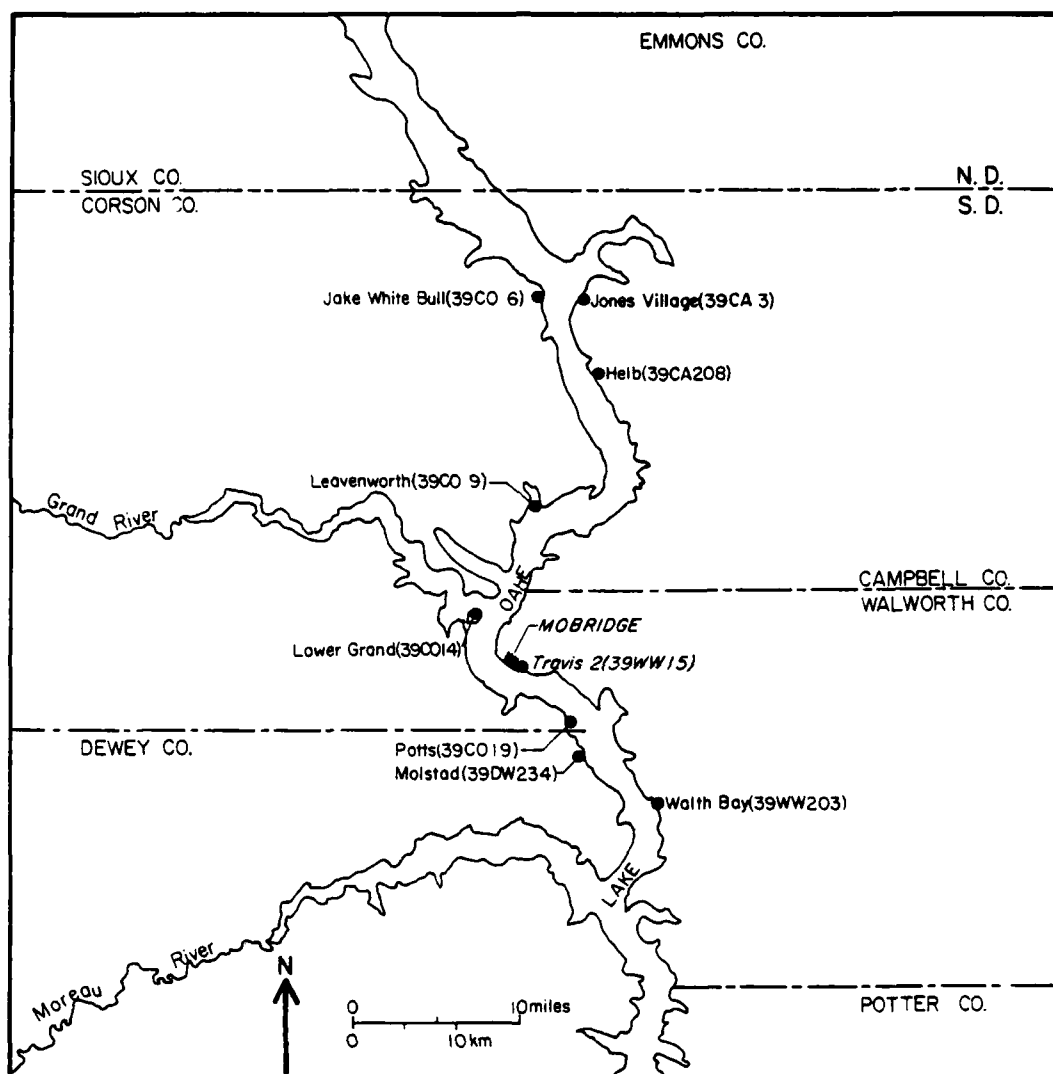


Figure 6. Location of major previously recorded archeological sites visited and/or monitored for shoreline erosion during the 1978 field season in the Mobridge area.

The mechanical wave action on the exposed cutbank regularly subjects the site to severe erosion during times of high reservoir pool elevation (ca. 1615 ft msl or above). The Jake White Bull site is also regularly visited by looters and artifact collectors who generally limit their activities to the beach areas and to the cultural features exposed in the cutbank. It was chosen for intensive monitoring because of its significant nature and the certainty of adverse impacts upon it during the summer of 1978.

UND personnel first visited the Jake White Bull site on May 25, 1978 to assess the erosional situation and to determine requirements for adequate monitoring. The crew relocated permanent grid markers and photographically documented the appearance of the site, with particular emphasis on the condition of the vertical cutbank facing the lake. With the exception of some low-lying areas of the site, the water level of the Oahe Reservoir at that time (ca. 1615.4 ft) was below the lower terminus of the vertical cutbank. The water had, however, completely flooded the beach area which composes the lake frontage of the site. The flooding and the accumulation of driftwood, which was composed largely of the massive trunks of uprooted cottonwood trees, eliminated the possibility of any systematic beach collection until the Oahe Reservoir pool elevation dropped significantly.

Several intact blocks which had slumped off the vertical cutbank were lying on the inundated beach area. This indicated recent major erosion of the cutbank. Cutbank landmarks in the form of the 1976 excavation units were intact. Several archeological features were exposed, including two pit features which had been looted.

Since the site did not appear to be actively eroding at this time, further fieldwork was delayed at the Jake White Bull site until the Oahe Reservoir pool elevation had dropped significantly. Remapping the cutbank was also delayed until the yearly cycle of cutbank erosion had ceased.

More intensive monitoring of the Jake White Bull site commenced on July 9, 1978, when UND project personnel reexamined the site area. A combination of weather factors and high pool elevation had created a condition of active erosion along the entire length of the site. Undercutting of the vertical cutbank due to wave action had produced recent areas of block slumpage, exposing new features in the cutbank profile as well as exposing cultural material in the slump blocks. An emergency matrix sample was taken from a bell-shaped pit feature with a grid location of 314NW212.9. The sample was water-screened and the debris was retained in storage at UND for potential future analysis.

A subsequent visit to the site on July 11, 1978 for the purpose of gathering metric data on exposed cutbank features prior to their destruction offered an opportunity to witness the destructive capability of the Oahe Reservoir on the Jake White Bull site. Very large waves angled into the cutbank from the southeast, and pounded suspended driftwood and uprooted trees into the lower portion of the cutbank. This caused undercutting and dislodging of large slump blocks. The crew attempted to photographically document some of the exposed features in the cutbank, but this met with little success since the destruction of the features was very rapid.

Following the July 11, 1978 visit, the Jake White Bull site was observed one time per week with the final visit occurring on Sept. 21, 1978. Monitoring activities during this period consisted of mapping the new cutbank, photographic documentation of further site destruction from erosion and looting, and beach collection according to the arbitrary 1976 beach collection units.

1978 Cutbank Map

The vertical cutbank at the Jake White Bull site was mapped on August 31, 1978. At that time, the Oahe Reservoir pool elevation was 1613.49 ft msl and it appeared that the site was in little danger of further cutbank erosion. The cutbank was mapped from an arbitrary line of stakes linked to the 1976 grid. The resulting information was incorporated into a map showing the 1978 cutbank location and its relation to the cutbank of 1976 (Fig. 7).

Photographic Documentation

Color slide, color print and black and white print photography were utilized to record the impact of cutbank erosion and looting upon the site. The major effort was directed at providing cutbank panoramas and views of specific areas of cutbank erosion. The crew also made an effort to record features exposed in the cutbank profile as they eroded into the water. Provenience was recorded in the form of a single grid point centered over the feature.

Another effort was directed at recording looting of features exposed in the cutbank, an all too common event at the Jake White Bull site. Looting generally consists of burrowing into the exposed cutbank features with minimal ground surface disturbance. Due to the magnitude and intensity of relic hunting, not all of the looted features were recorded. Provenience was usually recorded in the form of a single grid point centered over the looted feature.

Beach Collection

When the Oahe Reservoir pool elevation had dropped enough to expose the beach area below the cutbank, the crew began beach collection within the 1976 beach collection units (Ahler 1977:21,23). Materials collected from the beach areas and slump block talus included chipped stone tools, flaking debris, ground stone tools, bone tools and rim sherds. Identifiable faunal remains, body sherds, and fire-cracked rock were too abundant to practically collect and transport from the site.

Several factors hindered the beach collection at Jake White Bull. For a considerable duration of the project, high water levels eliminated opportunity for any beach collection since the beach was underwater. As the reservoir pool elevation dropped, an enormous quantity of driftwood was deposited on the beach, drastically reducing surface visibility. Also, each effort at beach collection was accompanied by the discovery of numerous footprints on the beach, apparent evidence of unauthorized collecting. The relic hunters at Jake White Bull also displayed a

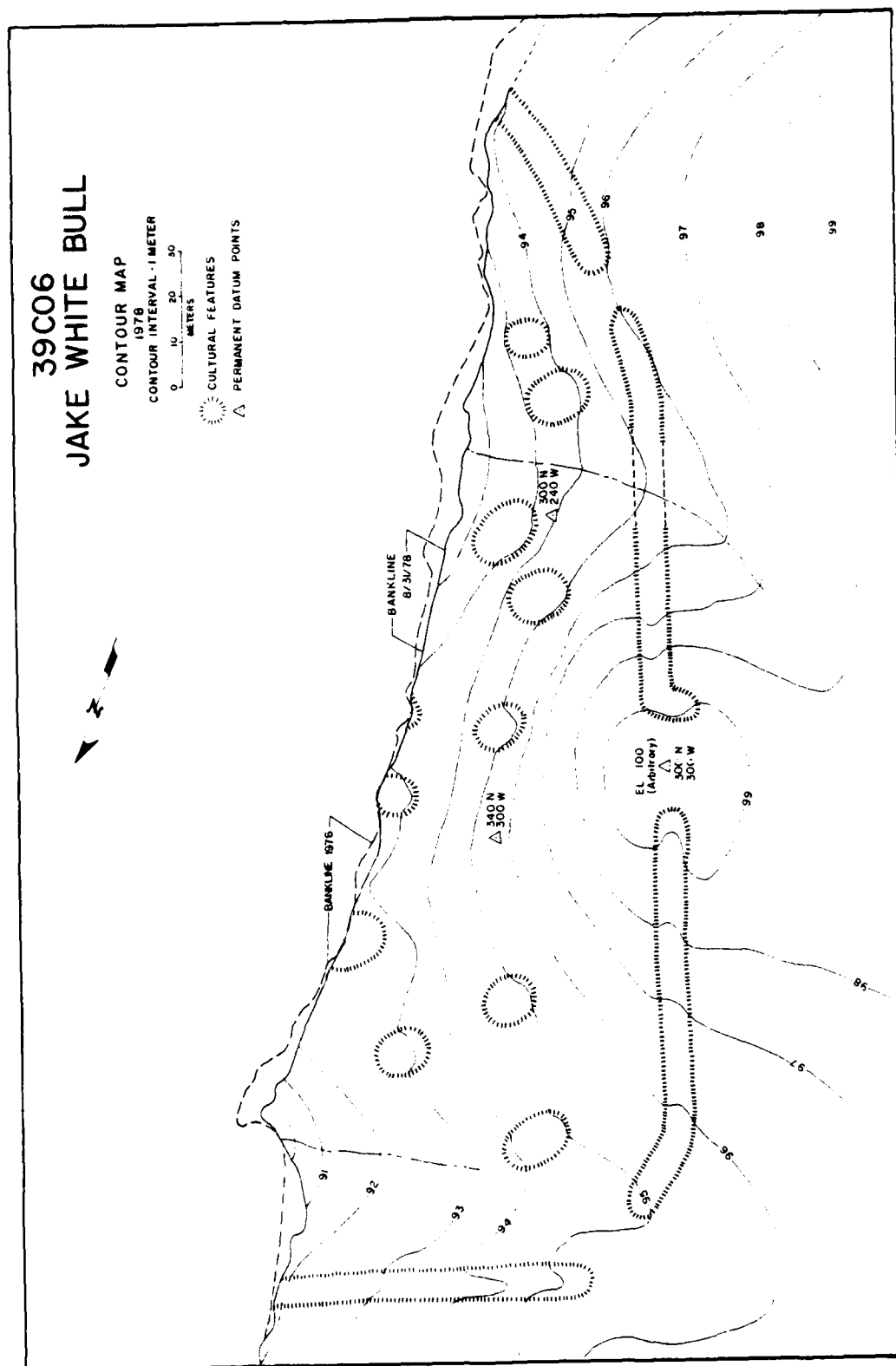


Figure 7. Contour map of the Jake White Bull site illustrating changes in the cutbank location and the degree of shoreline erosion during the period 1976 to 1978.

flagrant disregard for the grid stakes on the site area. Mapping stakes were consistently pulled up or run over.

Discussion

A comparison of the 1976 shoreline with the 1978 shoreline shows that mean bank retreat has been approximately 2.9 meters. Calculations show that approximately 841 square meters of site surface area eroded into the lake between the fall of 1976 and August 31, 1978. Approximately 13,500 square meters of site area were intact in 1976 (Ahler 1977:19) and 12,659 square meters were intact as of August 31, 1978. This corresponds to 93.8% of the 1976 site area. The magnitude of the wave induced erosion, however, can be illustrated by pointing out that less than one-fourth of the site area reported in 1966 (when the reservoir was first filling) remained intact as of August 31, 1978.

A large amount of significant information about the Middle Missouri subarea is being rapidly destroyed at the Jake White Bull site. Destruction of the site from wave erosion and looting will probably continue in the future at least as rapidly as it is now occurring. In the report on the 1976 work at the site, a series of recommendations for mitigative action were set forth and prioritized (Ahler 1977: 149-156); the recommendations ranged from site protection through major salvage excavation. As of this writing, these same mitigative recommendations remain in effect.

Walth Bay

The Walth Bay site is a large stratified archeological site located on the eastern shore of the Oahe Reservoir approximately 12 miles downstream from Mobridge, South Dakota (Fig. 6). Excavations were conducted at the site in 1970, 1971, and 1972. The excavations revealed "three distinct soil profiles (which) are associated with successive Late Paleo-Indian, Plains Archaic, and Plains Village Tradition occupations" spanning at least 7,000 years (Ahler *et al.* 1974:905). Very little is known of the preceramic occupation of the Middle Missouri despite the huge Federal archeological salvage program of the 1950's and early 1960's. Recent reservoir shoreline erosion of the soft valley sediments, however, has revealed many previously buried early archeological components. Walth Bay is one such site and is of great significance. The cutbank at the site margin is subject to severe erosion precipitated by high pool elevations of the Oahe Reservoir. The significance and unique nature of the Walth Bay site lends it to continuing study; it was one of the major areas of emphasis for the Travis 2 Monitoring Project.

Another factor which endangers the site is its inclusion in a Corps of Engineers recreation area. The popularity of the recreation area has contributed to the destruction of a unique and irreplaceable cultural resource.

A third factor endangering the Walth Bay site is overgrazing by cattle. Vegetation occurring on the surface of the site is indicative of overgrazing (Michael Scullin 1978: personal communication). The cattle have damaged the cutbank in several locations as a result of traveling from the site area to the water.

Site Mapping

The 1978 cutbank location was established by measuring from selected grid points in the grid system which was established during test excavations at the site (Ahler 1975b: Appendix B). The resulting data have been incorporated into a map which shows the 1978 cutbank location with reference to its 1970 and 1972 locations (Fig. 8). The cutbank ranges from about one to three meters in height and is steadily receding under the impact of yearly reservoir erosion. Examination of Figure 8 graphically reveals the extent of the cutbank erosion at the site. The cutbank exposes all three profiles which contain cultural complexes, so the entire cultural stratigraphy is subject to erosion and destruction.

A metric comparison of the 1972 cutbank location to the 1978 cutbank location reveals that mean erosion has been 31.3 ft. A small amount of this erosion occurred during 1978, but the majority of the erosion probably occurred during the exceptionally high water in 1975. Calculations show that approximately 16,740 square ft of site surface area have been destroyed since the 1972 cutbank was mapped. This and the knowledge that the deposits range to 3.0 meters or 10.0 ft in depth emphasize the extensive destruction of the site which has occurred and its instability with respect to fluctuating pool elevations.

Beach Collection

As the reservoir pool elevation dropped in August, the beach below the cutbank was exposed and considerable amounts of cultural materials which had eroded from the site were exposed on the beach area. Collections of artifacts on the eroded beach were made on a number of occasions during the last half of August and throughout September. In order to provide spatial control for collection of material from the beach area, arbitrary 50 ft wide beach collection units were established. Collection was made according to 15 units, labelled A through O from south to north, with separation between units E and F at the 600N grid line (Fig. 8). While these collection units do not coincide with beach collection units used in the 1972 fieldwork at the site, they provide a similar degree of spatial control on beach materials.

Cultural materials collected include flaking debris, chipped stone tools, ground stone tools, rim sherds, bone tools, and nonbison faunal elements which were potentially identifiable. Since there is a popular recreation area on the site, it is highly likely that unauthorized collection is regularly practiced on the beach area, effectively biasing the nature of the UND project collections. Material from the beach collections is curated at the Department of Anthropology and Archeology, University of North Dakota, for potential future analysis.

Other Activities

A third activity at the Walth Bay site involved observing and noting cases of human destruction to the site. This includes intentional destruction for the purpose of looting and inadvertent destruction due to carelessness. Intentional destruction for looting consisted primarily

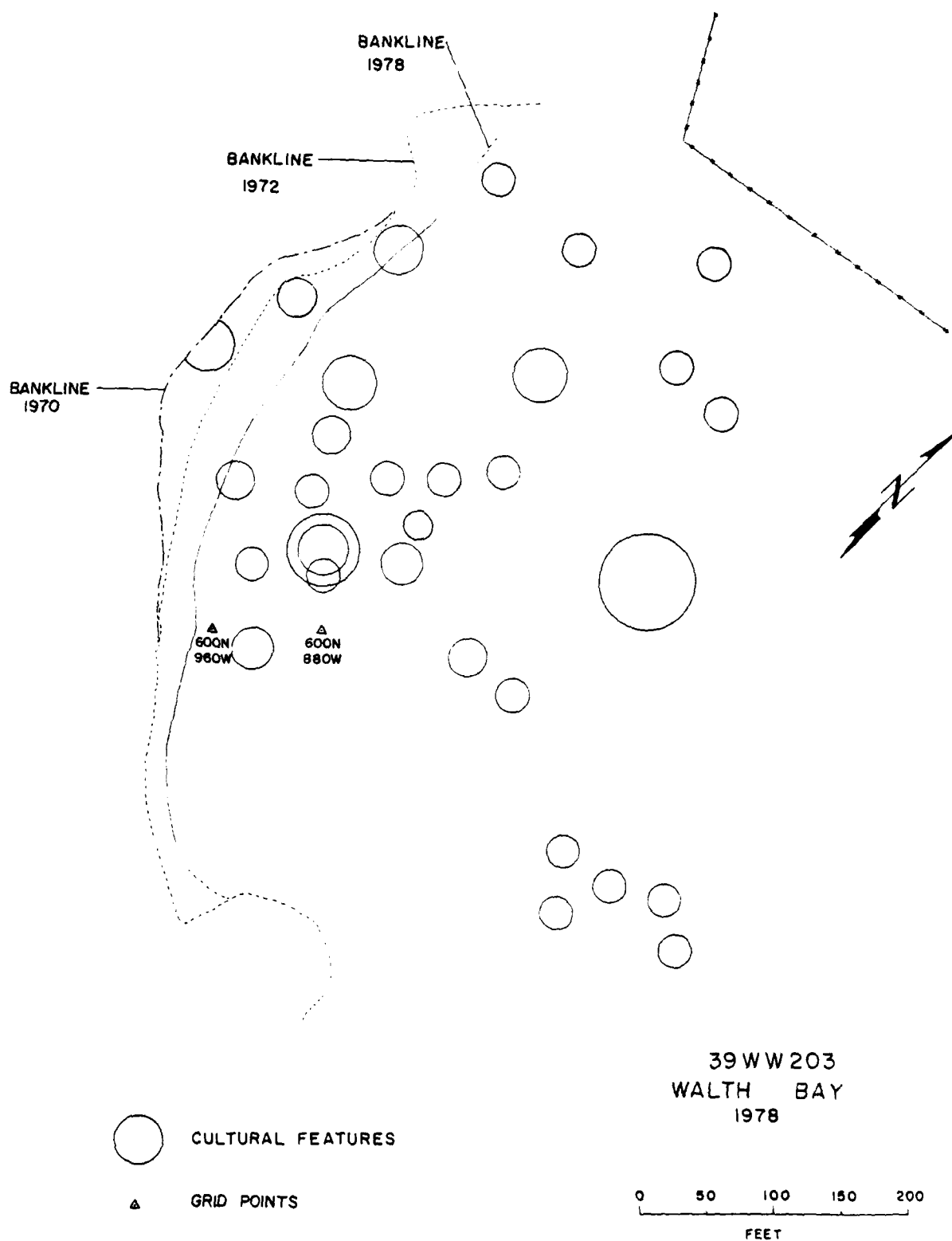


Figure 8. Plan map of the Walth Bay site illustrating changes in the cutbank location and the degree of shoreline erosion during the period 1970 to 1978.

of shovel shearing along the cutbank. Also, a looted and screened pit feature in the cutbank was noted. These instances of looting were photographically documented. Destruction due to carelessness includes the practice of cutting steps into the cutbank in order to ease access to the beach areas. These stepped excavations occur at several places along the cutbank and are damaging to the site. In addition, the site surface serves as a dumping place for human refuse and is pocked with small pits dug for the purpose of leveling recreational vehicles.

Map-based observations of cutbank retreat exhibit considerable site destruction, which can be metrically documented. Secondary impacts on the site, resulting from the location of a Corps of Engineers recreation area at the site and from malicious site looting, also contribute to site destruction and were subjectively observed and noted.

In the course of fieldwork, spatially controlled beach collections of cultural materials which eroded from the site were performed. These collections may be of limited value, however, since the site is often visited and probably collected. Also, it is likely that some of the cultural materials have been on the beach for several years, subject to the actions of waves and sand. It should be noted, however, that every properly collected item contributes to our general knowledge of the Walth Bay site.

The destruction of the highly significant Walth Bay site will continue until the Corps of Engineers ceases to use the site for a recreation area and takes steps to stabilize the cutbank.

Lower Grand (39C014)

The Lower Grand or Davis site has been assigned to the Extended Variant of the Coalescent Tradition (Lehmer 1971:117). The site is on the right bank of the Grand River in the Indian Memorial Recreation Area (Fig. 6); the present eastern margin of the site is a precipitous cutbank overlooking the Oahe Reservoir. Previous work includes excavations conducted by the Smithsonian Institution River Basin Surveys in 1962 through 1964 directed by Alfred Bowers, and excavations conducted by the University of Missouri-Columbia in 1969 directed by W. R. Wood and C. R. Falk (Ahler 1975a, 1975b).

Monitoring activities at the site in 1978 were confined to observations of the condition of the exposed cutbank and a very limited general beach collection.

During the 1978 field season, the erosion at the Lower Grand site appeared to be of a much more passive nature than erosion of other sites in the area. As the reservoir eroded into the lower strata of the cutbank, stress cracks formed in the upper part of the terrace at the site surface. This formed slump blocks, often of large size, at the cutbank margin, which gradually slid into the reservoir. For example, one block, 8.90 meters long and with a mean width of ca. 0.50 meters, had slipped 0.40 meters below the original ground surface. This seemed to be the characteristic pattern of erosion at the Lower Grand site, although it is entirely possible that more extensive slumping could occur under the proper conditions.

A very small beach collection was taken at the site, due to the relatively small amount of cultural material present and the heavy driftwood accumulation and talus deposits on the beach area. During most of the project duration, high reservoir pool elevation covered the beach areas below the cutbank. When the water level did drop, the accumulation of driftwood on the beach made collection very difficult.

Further investigations at the site were hindered by the heavy vegetation cover and by the highly disturbed site surface which is a product of large scale digging for relics. These factors made relocation of grid points almost impossible, even with previous site maps. The cratered jungle-like appearance of the Lower Grand site is an example of the end result of large scale, illegal digging for relics; its condition stands as a testament to the previous ineffectiveness of the Corps' cultural resource management program.

Helb (39CA208)

The Helb site is located on the left bank of the Missouri River (Fig. 6) and is assigned to the Extended Variant of the Middle Missouri Tradition. The site was originally recorded in 1966 by Donald Lehmer at which time he noted 40 house depressions arranged roughly in 5 rows. The site was mapped in 1969 by archeologists from the University of Missouri-Columbia with later mapping, test excavations, and salvage excavations conducted by the National Park Service in 1972 (Falk and Calabrese 1973:336) and 1973. The site was heavily damaged by wave erosion between 1969 and 1972, and again in 1975; only six house depressions remained in August of 1972, and parts of these six were destroyed by October 1975 (Ahler 1975c.).

Personnel of the Travis 2 Monitoring Project visited the site once, on August 11, 1978, and located four of the house depressions, which were probably H10, H11, H12, and H13 (Falk and Calabrese 1973:338). Approximately 1/3 to 1/2 of each house depression has been destroyed through cutbank erosion; this situation apparently has changed little since the fall of 1975.

House depressions 11 and 12 have been heavily damaged by destructive site looting. There are potholes in each depression, at the cutbank exposure and between the depressions. Potholes ranged in size from 3 by 1 by 1 meters to 1 by 0.75 by 0.75 meters. Pits were dug down to the cultural zone, with a cave-like extension following the cultural zone. Results of some of the looting were photographically documented.

In summary, most of the Helb site has been destroyed through wave-induced erosion or illegal relic digging.

Jones Village (39CA3)

The Jones Village or Jones Bay site is a large earthlodge village which has been taxonomically assigned to the Extended Variant of the Middle Missouri Tradition (Lehmer 1971:67) and is located on the left bank of the Missouri River (Fig. 6). The site is easily accessible only

by boat or 4 wheel drive vehicle; therefore, the UND personnel visited the site only once on August 18, 1978.

The Jones Bay site lies on a terrace approximately 10 to 12 meters above the adjacent shoreline. The lakeside boundary of the site is composed of a vertical cutbank. The length of the exposed cutbank, determined by pacing, is about 550 meters. Due to heavy vegetation cover, only 1 surface feature could be detected; it is believed to be a house depression. The amount of cutbank erosion since inundation is unknown, but it is probably considerable.

The entire length of the exposed cutbank was observed from below. Numerous features and site areas could be seen including a multitude of large, bell-shaped pit features; house depressions with visible microstratigraphy including evidence of burning; and midden areas, some with visible microstratigraphy and one with a mollusk shell concentration as the major component. The cultural deposits ranged from 0.50 to 2.00 meters thick and seemed to be capped by sterile soil.

At the base of the vertical cutbank, talus piles 3 to 6 meters high were present. Cultural materials present in the talus included bison bone, a bear mandible, fire cracked rock, clinker, flaking debris, ceramic sherds, charcoal, chipped stone tools, and numerous bone fragments. Five diagnostic rim sherds, one projectile point, 1 biface fragment, and one complete biface comprised the collection obtained for study. These artifacts were collected from the central portion of shoreline which was adjacent to the site. The cultural materials are curated at the Department of Anthropology and Archeology, University of North Dakota, for possible future analysis.

Photographs were taken of the site surface, features exposed in the vertical cutbank, and the overall cutbank exposure. Several features had been illegally dug out of the cutbank, resulting in large, cave-like holes. These were also photographed.

The full extent of intact remains at the Jones Bay site could not be determined since the only visible indications of cultural remains are in the cutbank. The amount of site area remaining behind the cutbank is unknown, but erosion of the cutbank will most certainly continue each time the pool elevation rises to the base of the cutbank. Also, the Jones Bay site is a highly vulnerable target for illegal relic digging since the cutbank exposure is so extensive and spectacular.

Potts Site and Vicinity

The UND crew visited the Potts site (39C019) on August 20, 1978. The site is located on the right bank of the Missouri River (Fig. 6) and is assigned to the Extended Variant of the Coalescent Tradition (Lehmer 1971:117). Included in the report of Smithsonian River Basin Surveys 1961 excavations at the site is a compendium of the research performed at the site as well as detailed descriptions of the site and its contents (Stephenson 1971).

The Potts site locale was inundated at the time of the visit.

Examination of an upstream area which consisted of a low cutbank faced with a broad mudflat, however, resulted in a general beach collection, possibly originating from two sites reported by Lehmer (1971:Fig. 77) to be in the immediate vicinity, 39C017 and 39C0202. More research is needed to determine the exact location of these two sites. The possibility also exists that some of the material observed on the beach eroded from the larger portion of the Potts site which is outside the fortification to the northwest. This area originally contained 35 to 40 houses (Stephenson 1971:12).

In an effort to locate any surface features, the ground surface above the cutbank was examined from the approximate area of the Potts site northwest to Timber Creek. If any surface indications exist, they could not be detected due to heavy grass cover and possible extensive cultivation of the area. One subsurface pit was observed in the cutbank. Numerous footprints on the mudflat suggest that the site area is occasionally visited for relic collecting.

A preliminary analysis of the cultural materials suggests an Extended Coalescent association of ceramics and chipped stone raw materials. Some of the chipped stone material, however, is patinated and appears to be Pre-Plains Village in origin.

Molstad (39DW234)

The Molstad site is located on the right bank of the Missouri River (Fig. 6) and is taxonomically assigned to the Extended Coalescent Variant of the Plains Village Tradition (Lehmer 1971:117). Smithsonian River Basin Survey excavations were conducted at the site in 1962, and the results of that work appear in Hoffman (1967).

Observations at the Molstad site on August 20, 1978 revealed that the site is virtually intact. The cutbank could soon encroach on the site area, since it was then only about 10 meters away from the eastern margin of the site. Photographs of the overall cutbank exposure were taken from the lake.

Erosion patterns at the Molstad site differ from most other sites in the Mobridge vicinity, since the site rests on 3 to 5 meters of silty deposits which lie directly on the Pierre shale. The pool elevation probably never reaches the site itself, but erodes the underlying Pierre shale bedrock. While the bedrock is more erosion resistant than the overlying silt and soil, erosion still occurs, but at a slower rate.

Leavenworth (39C09)

The Leavenworth site is located on the right bank of the Missouri River (Fig. 6) and contains two components which are taxonomically assigned to the Extended and Disorganized Variants of the Coalescent Tradition (Lehmer 1971:117, 173). The main occupation of the site consists of a pair of earthlodge villages, historically documented to have been occupied by the Arikara tribe, and several associated burial

areas. The village portions of the site were inundated with the impoundment of Oahe Reservoir, while parts of the cemetery areas may remain above water. The site has a long history of archeological investigation which is documented in Krause (1972) and Bass et al. (1971).

The UND project personnel were informed that a portion of one upper burial area remained above water (Richard Krause 1978: personal communication). A subsequent visit to the site in August, 1978 resulted in relocation of at least a portion of the upper burial area. The area was identified by a maintainer cut across the top of a small point of land above the small bay which now covers the Leavenworth site area. No cultural materials or human remains were exposed on the ground surface or on the adjacent shoreline.

Shoreline Survey

As a part of reconnaissance work in the Mobridge area, an archeological survey was conducted from Walth Bay to Mobridge along the east shoreline of Lake Oahe, a distance of approximately 12 miles (Fig. 9-13). The objectives of the survey were (1) to locate and record new cultural resources on Corps of Engineers lands, (2) to evaluate the validity and productivity of conducting archeological survey at times of high reservoir pool elevation, and (3) to record exposures of geologic formations which might pertain to early aboriginal occupation of the area. The survey resulted in the recording of 15 previously unrecorded archeological sites, 18 isolated artifact areas and 10 areas of geologic interest.

The survey area is composed primarily of steep, soft cutbanks overlooking gently sloping beaches. At times of high reservoir pool elevation, the cutbanks experience rapid erosion from the pounding of the waves and wave-transported debris such as uprooted trees. Numerous cultural resource areas are located at the margin of the reservoir and are actively eroding into the water. This situation is common throughout the Oahe Reservoir, and the survey area from Walth Bay to Mobridge is no exception.

Methods

The survey project began in June and continued intermittently through the summer and into the fall. During the months of June, July and August, the reservoir pool elevation was quite high and all the beaches were inundated. Waves were actively eroding the cutbanks; inspection of the beaches and most of the cutbanks was difficult or impossible. An effort was made to examine the cutbanks where possible; however, this effort was generally unproductive. During this first phase of the survey (June - August), work was primarily confined to Corps of Engineers land above the cutbanks. In this period, the two-man survey crew expended approximately 8.25 man-days of field effort in examining several major segments of land between Walth Bay and Mobridge.

In late August, the reservoir pool elevation began to drop, exposing larger beach areas. By early September, the water had receded far enough

to permit intensive examination of beaches and cutbank exposures. The second phase of the survey fieldwork began at this time. During this work effort, the two man crew concentrated its efforts on the beaches and adjacent cutbank exposures. The ground surface above the cutbank was generally examined only when cultural materials were found on the beaches or in the cutbank. Lands covered during the first survey phase were generally not reexamined; the effort was on continuing to cover as much of the beachline between Walth Bay and Mobridge as possible. Examination of the cutbank for significant geologic exposures was also done in this work phase. The second phase of fieldwork was completed during the month of September with 13.0 man-days of field effort being expended during that period of time.

During the course of the fieldwork, the on-the-ground examination was made by the two-member crew walking in transects generally paralleling the shoreline orientation. In the survey above the cutbank, a strip or area ca. 100-200 m in width was intensively examined for cultural material. The actual width of the area examined above the cutbank varied according to the topography and ground surface visibility; blowouts, cultivated areas, anthills, roads, trails, and prominences were intentionally sought out and examined. Dense grass cover severely limited ground surface visibility in many areas. In the survey of the beach, the two-member crew walked in single or multiple sweeps of the beach paralleling the cutbank orientation, with the cutbank examined at the same time. During the survey, spatially definable concentrations of cultural material (three or more artifacts in general association) were generally designated as archeological sites and were eventually given site names and numbers. Artifacts occurring singly, in pairs, or in larger numbers in possible spurious association were also located, and these were numbered sequentially as "isolated finds" but were not given site numbers and site names. In addition, interesting and potentially significant geologic exposures observed in the cutbanks were marked on field maps and were designated as geologic "areas" as discussed below. At the archeological sites and at the isolated find locations, the general policy was to collect the totality of observed cultural debris, particularly cultural debris on the beach or ground surface. An exception to this collection policy was made for cultural materials exposed in stratigraphic context in the cutbank, where complete removal of such materials would alter the integrity of the site and might limit reexamination or future study of the area. Other exceptions to the general rule of total artifact collection will be noted in the discussions of individual sites and isolated artifact finds.

Figures 9 through 13 illustrate the areas actually examined during the shoreline survey; due to time limitations, the survey crew was not able to intensively cover all of the shoreline between Walth Bay and Mobridge. As can be seen in the figures, major segments of lakeward facing shoreline were examined, but a survey of lands around major tributaries and embayments, such as Blue Blanket Creek and Indian Creek, was not accomplished. Also, it should be noted that the survey crew did not attempt to determine the exact boundaries of Corps land along the reservoir nor to completely survey to the limits of Corps property. Therefore, in areas adjacent to the segments of shoreline examined, there are almost certainly sections of Corps property which were not surveyed. The main intent in the survey project was to concentrate efforts on the

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shoreline where the likelihood of finding sites was greatest due to erosional exposure. While a complete survey of Corps property was not accomplished, this work can serve as a pilot project; the data collected can serve as a useful guide to the productivity of larger-scale cultural resource surveys of the eastern shore of Lake Oahe. It is known that such a large-scale shoreline survey is upcoming in the near future. For a variety of reasons it is recommended that the entire area covered in the UND shoreline efforts be reexamined in the upcoming reconnaissance effort.

Results

Fifteen archeological sites were recorded in the shoreline survey between Mobridge and Walth Bay. Data on these sites are summarized in Table 7, which gives information of the site type; tentative cultural-historical placement; the locus of artifacts observed at the site (beach, cutbank, upland surface); and the phase of fieldwork during which the site was first visited. As can be noted from the table, the majority of sites are lithic scatter areas, all of which are distinguished by the occurrence of flaking debris and occasional stone tools. The most common raw materials are various light colored chalcedonies, Knife River Flint, and coarse Tongue River Silicified Sediments. In nearly all cases, the majority of the fine-grained raw materials are partially or heavily patinated, indicating considerable age for the surface materials. In a few instances, patterned tools of definite preceramic affiliation occur, but in most instances only a probable preceramic cultural-historical affiliation can be assigned to the site.

The intent in this report is not to provide an intensive analysis of the sites or the artifacts recovered. Rather, these data can best be integrated with future data from a more comprehensive survey of the Oahe Reservoir when more detailed studies of artifact forms and site contexts can be made. The locations of all newly recorded sites are provided in Figures 9 through 13. Appendix D contains copies of South Dakota site survey forms for each newly recorded site, as well as copies of completed forms used by the State of North Dakota for recording data on cultural resources and resource surveys. The latter forms are used since they are thought to contain more usable information than the abbreviated South Dakota form. For example, this form contains an inventory of all surface collected artifacts removed from each site; this information will not be repeated in the individual site discussions which follow. When patterned tools or other artifacts of interest were surface collected, an outline drawing of such items is presented by individual site in Appendix D.

A brief description including setting, contents, and present condition will be provided for each newly recorded site.

High Point Site (39WW56)

The High Point site consists of a lithic scatter in a small (20m x 20m) area at the edge of a large upland terrace which overlooks the Oahe Reservoir (Fig. 9). The site is covered with dense prairie grasses which effectively obscure the ground surface, so the lithic

Table 7. Summary data on new archeological sites recorded in the shoreline survey, UND Travis 2 Monitoring project, 1978.

Site Name and Number	Site Type	Cultural-Historical Placement	Phase During Which Recorded	Locus of Artifacts		
				Beach	Cutbank	Upland Surface
High Point (39WW56)	Lithic Scatter	Preceramic (?)	1			X
Sackreiter (39WW54)	Lithic Scatter	Preceramic (late ?)	1			X
Geezer (39WW53)	Bone Concentration	Unknown	1		X	
Farmstead (39WW52)	Lithic Scatter	Preceramic (?)	2	X		
Creek (39WW51)	Lithic Scatter	Preceramic (?)	2	X		
Lost Hat (39WW50)	Lithic Scatter	Preceramic (?)	2	X		
Mud Flat (39WW49)	Lithic Scatter & Bone Concentration	Preceramic (early to late)	2	X	X?	
No Road (39WW48)	Lithic Scatter	Preceramic (late ?)	2	X		
Washboard (39WW47)	Lithic Scatter	Preceramic (?)	2	X		
Old Trailer (39WW46)	Lithic Scatter	Preceramic (?)	2	X		X
Beehive (39WW45)	Lithic Scatter	Preceramic (?)	1	X		
House Boat (39WW44)	Lithic Scatter	Preceramic (?)	2	X		X
Whitecap (39WW43)	Lithic Scatter	Preceramic (late ?)	2		X?	X
Kennedy Park (39WW42)	Lithic Scatter	Preceramic (?)	1			X
Sewer Bay (39WW41)	Hearth, Debris Scatter	Plains Village (?)	1	X	X	
Little Runner (39WW55)*	Lithic Scatter	Preceramic (?)	1	X		
Tasoom (39C056)*	Lithic Scatter	Preceramic (?)	1			X
Come Cow (39C057)*	Lithic Scatter	Preceramic (?)	1			X

* Sites found outside the main Walth Bay to Mobridge survey area.

materials which comprise the site collection were collected in bare areas such as anthills. No cultural features could be detected on the surface and none of the lithic materials were in situ.

No temporally diagnostic artifacts were recovered at the site; therefore, it is impossible to assign it to a cultural period. Several of the flakes in the collection, however, are heavily weathered or patinated, which suggests considerable age.

The lithic materials in this collection were originally classified as isolated find (IF) #16, but it was decided that they warranted treatment as an archeological site.

The authors have been informed that the State of South Dakota wants to develop a gravel mine on the terrace surface in the area immediately south of the High Point site area (Fig. 9). Although this site is not extensive on the surface, it could actually be quite large beneath the ground. Lithic scatter sites of this type are often much larger than their surface manifestations indicate. For this reason, it is recommended that the gravel mining operations be kept well away from the site area. If it is necessary to mine in the site area, some form of test excavations will be necessary to determine the full extent and significance of the site and to develop a plan for mitigation.

Sackreiter Site (39WW54)

The Sackreiter site consists of a large scatter of flaking debris, chipped stone tool fragments, cores and fire-cracked rock. It is located along the rim of a high terrace (el. 1670 ft) and measures at least 900m x 85m (Fig. 9). It has been defined largely in a small two-track road which parallels the terrace edge. The distribution of artifacts in the roadway was not continuous, and it is likely that the site actually consists of several spatially discrete subparts, which may differ in age and/or function. Dense vegetation over most of the site, however, made accurate appraisal and collection very difficult. An examination of the beach below the site revealed only 1 flake, which suggests that the cutbank has not begun to erode into the site area.

There is a Corps of Engineers lake access road and parking area at the northern margin of the site. This public use area is a threat to the integrity of the site, since it encourages illegal relic collecting in the small road crossing the site area.

Most of the lithic materials at the site are heavily weathered or patinated, which suggests considerable age. The only temporally diagnostic projectile point discovered (Appendix D) would indicate a late preceramic or early ceramic tradition occupation at the site.

Geezer Site (39WW53)

The Geezer site consists of a bison (?) bone concentration eroding out of a 10-12 meter high cutbank exposure (Fig. 9). The deposit is 1.9 to 2.0 meters below the ground surface and is within a filled arroyo cut. The bone is in a zone of tan clayey silt between two layers of

grey clayey silt. Some flecks of charcoal are mixed among the chunks of bone.

The site was first recorded on June 16, 1978, and at that time the bone zone was quite extensive. The site was revisited after the water level had receded in early September, and only a few chunks of bone remained in the cutbank. It is not known how extensive the deposit is.

One bipolar core/core tool was collected from the beach below the cutbank; it is not temporally diagnostic, however, and the deposit cannot be assigned to a cultural period. In addition, samples of bone were collected from the slumpage at the base of the cutbank, and two flakes were collected from the undisturbed ground surface above the cutbank exposure. It is recommended that a qualified paleontologist visit the site to assess the nature of the deposit.

Farmstead Site (39WW52)

The Farmstead site consists of a small, diffuse lithic scatter in a 20m x 15m area on a gently sloping beach (Fig. 11). There were no definable concentrations of lithic materials within the site area, and none of the lithic materials were in situ. There is virtually no cutbank above the site area, the ground surface slopes gently into the lake. The site area is within a protected inlet, so the wave action probably has not moved the cultural materials very far from their original position. The ground surface above the beach was covered with dense vegetation at the time of recording, so careful inspection of the ground surface was impossible. No cultural features such as fire hearths or storage pits could be detected.

This site is directly across a small point of land from the Creek site (39WW51) (Fig. 11). It is possible that the cultural materials found at both sites are eroding from the same cultural zone within the small point of land; this area is currently under cultivation.

No accurate cultural period designation can be made for the site at this time as no temporally diagnostic artifacts were recovered. Some of the lithic materials recovered, however, exhibit some degree of weathering or patination, which suggests considerable age.

Creek Site (39WW51)

The Creek site consists of a diffuse lithic scatter spread along 600 meters of beach, which was 10-12 meters wide at the time the site was recorded (Fig. 11). The beach is delimited by a low cutbank which did not reveal any traces of a buried cultural zone. Dense vegetation above the cutbank prevented any detailed examination of the ground surface. It cannot be determined, therefore, where the cultural materials are eroding from. The lithic materials were spread uniformly along the beach, none were in situ, and no concentration could be defined.

No accurate cultural time period designation can be made since none of the artifacts recovered are temporally diagnostic. Most of the lithic materials, however, are heavily patinated, suggesting considerable age of probably at least a preceramic designation.

Lost Hat Site (39WW50)

The Lost Hat site consists of a small, diffuse lithic scatter within a 60m x 30m area at the end of a long peninsula (Fig. 11). The lithic materials were found scattered on the beach; none were in situ and no cultural features such as hearths or cache pits were visible. The beach is bounded on the north by a 3m high cutbank consisting of uniform yellowish sand. No evidence of a cultural zone could be detected in the cutbank and no indications of a site area could be found on the ground surface above the cutbank; therefore, the source of the lithic materials on the beach cannot be determined.

A small collection of lithic materials was obtained at this site. On the basis of one large side-notched projectile point in that collection (Appendix D), the site appears to be at least preceramic in age. Along with the projectile point, several of the waste flakes in the collection show advanced weathering or patination, which suggests considerable age.

Mud Flat Site (39WW49)

The Mud Flat site consists of a diffuse lithic scatter spread along 275 meters of beach at the base of a 4m high cutbank (Fig. 11). No definite concentrations of cultural materials could be delimited, none of the lithic materials were in situ, and no cultural features were observed on the beach. The cutbank consists of a 1-2m thick layer of windblown silt overlying horizontally bedded, fine-grained alluvial sand. In some places, the silt layer filled old erosional cuts perpendicular to the cutbank orientation. In these areas, the silt zone was thicker, darker, and more erosion resistant. In one such area, a number of bison (?) bones were found in situ in the eroded cutbank, but no definite cultural materials were in association, or were observed anywhere in the cutbank face. No cultural materials or cultural features were visible on the ground surface above the cutbank.

Several temporally diagnostic projectile points were collected from the beach at this site and indicate a late Paleo-Indian to Archaic occupation (Appendix D). The projectile points and many of the other lithic materials at the site show extensive weathering or patination, which also suggests considerable antiquity.

There is an interesting situation at this site. The very early lithic materials which were previously mentioned are mixed with historic debris such as pliers and combs, as well as bones from the modern domestic pig. A source cannot be established for the historic debris.

The Mud Flat site apparently represents an area where the reservoir is actively eroding into a very early cultural zone. The zone may have been deeply buried prior to reservoir wave erosion. Although a source cannot be established for the lithic materials at the site, it may represent a very early occupation of the area similar to the Travis 2 site.

No Road Site (39WW48)

The No Road site consists of a diffuse lithic scatter spread along 200 meters of beach which was approximately 15m wide at the time of recording (Fig. 11). All of the lithic materials were found scattered on the beach, and none were in situ. No cultural features were visible on the beach or in the cutbank exposure which adjoins the site area. Scattered pockets of sand are present on the mud beach; this is where the lithic materials were found there. No cultural features were visible on the ground surface above the cutbank adjoining the site area.

A temporally diagnostic fragmentary projectile point was collected at the site (Appendix D) which indicates a Pre-Plains Village occupation. Evidently, the reservoir is eroding into an early cultural zone which was probably buried prior to inundation.

Washboard Site (39WW47)

The Washboard site consists of a lithic scatter on the beach beneath a low cutbank at the end of a small peninsula (Fig. 11). All of the lithic materials were found on the beach; none were in situ. The cultural materials were heavily concentrated on the beach, but no cultural features could be detected. The cutbank which adjoins the site area is approximately 1 meter high and is composed of uniform yellowish sand which does not exhibit any evidence of cultural zones. No cultural features could be discovered on the ground surface above the cutbank. The source of the lithic materials on the beach cannot be determined at this time.

No temporally diagnostic materials were discovered in the collection, so the site cannot be reliably assigned to a cultural period at this time. Most of the lithic materials in the collection, however, are heavily weathered or patinated, which suggests considerable age. Evidently, the reservoir is eroding into an early cultural zone which was probably buried prior to inundation.

There is a small Corps of Engineers recreation area above the site area. This will hasten the destruction of the site, since illegal relic collecting is greatly facilitated by an access road leading directly to the site area.

Old Trailer Site (39WW46)

The Old Trailer site consists of a lithic scatter which was defined in a small road on a ridge above a high cutbank (Fig. 11). No lithic materials could be discovered outside the road due to the dense prairie grass cover in the area. No cultural features were visible in the road or in the surrounding grass covered areas. The cutbank is encroaching on the site, and, in one area it has eroded half of the road away.

Lithic materials were discovered on the beach below the cutbank, which confirms that the reservoir is eroding into the site area in the cutbank. The lithic materials on the beach, however, were discovered

primarily in a large pile of flakes, which were evidently dumped after illegal relic collection. This was treated as isolated find #9. Since the presence of lithic materials on the beach can be documented, it is believed that they eroded out of the site area which is represented in the small road at the top of the cutbank. In this case, the presence of the small road allowed the survey crew to document the source of the lithic materials which were discovered on the beach. If ground visibility were improved in other areas, the source of lithic materials on the beaches could possibly be established.

No temporally diagnostic artifacts were recovered at this site, either on the beach or in the road at the top of the cutbank. The site, therefore, cannot be reliably assigned to a cultural period. Most of the lithic materials in the collection are heavily weathered or patinated; this suggests considerable antiquity, probably at least of a preceramic designation.

Beehive Site (39WW45)

The Beehive site consists of a lithic scatter on the beach at the base of a low cutbank located at the end of a small peninsula (Fig. 11). None of the lithic materials were in situ and no cultural features could be detected on the beach, in the cutbank exposure, or on the ground surface above the cutbank.

This site was originally recorded during the summer months when the pool elevation was high and the beach was inundated. When the site was revisited in early September, a large beach was present and it became evident that the site was much larger than originally believed. The site area extends 100m further up the beach than was originally detected. This extension lies on the beach beneath a 3m high cutbank which is capped by the Oahe formation; therefore, this is an area of special interest regarding early occupation of the area. This case serves to illustrate the limitations of survey work during periods of high reservoir pool elevation. This particular site was found to be almost twice as large when it was resurveyed during a time of relatively low pool elevation.

One small side-notched non-Plains Village projectile point was recovered in the beach collection (Appendix D). Virtually all of the lithic materials recovered from the site are heavily weathered or patinated. These two factors suggest considerable antiquity, probably at least a preceramic designation for the site.

The Beehive site is located directly below a small Corps of Engineers recreation area. This will hasten the eventual destruction of the site, since unauthorized relic collecting and digging are greatly facilitated by an access road leading directly to the site area.

House Boat Site (39WW44)

The House Boat site consists of a lithic scatter found in two small roads at the margin of a Corps of Engineers recreation area (Fig. 12). The lithic materials are heavily concentrated in the roads, but the dense

vegetation cover made it impossible to assess the nature or extent of the site in adjacent areas. The site area is located at the margin of an upland terrace which overlooks the lake. A few sparse flakes were found on the beach below the site area. The lack of extensive lithic materials on the beach would suggest that the major part of the site is located at the top of the terrace and that the shoreline erosion has not yet actively eroded it. The ground surface within the Corps of Engineers recreation area has been landscaped, which may have caused some damage to the integrity of the site. The extent of the possible disturbance could not be documented due to the dense vegetation cover at the time of recording.

Although the survey crew recovered a large collection from the House Boat site, there were no temporally diagnostic artifacts. It is impossible, therefore, to accurately assign it to a cultural period. Many of the lithic materials in the collection are heavily weathered or patinated, which suggests considerable antiquity.

The authors have been informed that the Corps of Engineers has plans to develop a boat ramp in the site area as a part of the Indian Creek recreation complex which is located across a small inlet from the site area (Fig. 12). The concentration of lithic materials in the small roads crossing the site area suggest that the site may be very extensive. A mitigation program in this area could be very expensive and time consuming; therefore, it is recommended that the proposed boat ramp developments not be constructed in the immediate House Boat site area.

The presence of the recreation area on top of the site has probably contributed to the slow destruction of the cultural resource. With such a concentration of lithic materials in the roads, that it seems highly likely that unauthorized relic collecting has been practiced.

Whitecap Site (39WW43)

The Whitecap site consists of a lithic scatter in a small road within a Corps of Engineers recreation area (Fig. 12). The site was defined in the road, but the dense vegetation cover in adjacent areas made it impossible to assess the full size of the site. The site is located near the margin of a large upland terrace which overlooks the lake. Several patinated flakes were found eroding out of a cutbank near the site; these were collected as IF 18, since no connection with the Whitecap site could be proven. The presence of the flakes in the cutbank, however, could indicate that the cutbank erosion is destroying the cultural zone comprising the Whitecap site.

Two fragmentary projectile points were recovered from the site and indicate a late preceramic or Archaic occupation. Many of the other lithic materials in the collection are heavily weathered or patinated, which suggests considerable antiquity.

Most of the Corps of Engineers recreation area near the site has been landscaped, but it appears that the site area may have been spared such alteration. The site area is adjacent to a picnic table, so the potential for unauthorized relic collecting is high. The full extent of this site cannot be determined without some form of testing since the

dense grasses in the area outside of the road effectively obscure the ground surface.

Kennedy Park Site (39WW42)

The Kennedy Park site is located in a Corps of Engineers recreation area atop an upland terrace which overlooks the lake (Fig. 12). The site was defined in plowed shelterbelt areas as a scatter of flaking debris and fire-cracked rock. Much of the area has been landscaped with roads crossing it, so the extent of damage to the site is unknown. A concentration of patinated flaking debris, which was apparently in situ, was noted eroding from the borrow ditch for one of the roads crossing the central part of the site. No lithic materials could be found below the cutbanks on the beaches adjacent to the site; this indicated that cutbank erosion has not yet begun to erode the cultural zone comprising the site.

No temporally diagnostic artifacts were observed at the site and no collection was taken of the observed flaking debris. Much of the flaking debris observed on the surface is heavily weathered or patinated, suggesting considerable age.

Since this site is in a recreation area, the potential for damage through unauthorized relic collecting is high.

Sewer Bay Site (39WW41)

The Sewer Bay site consists of a narrow strip of cultural material between the Oahe Reservoir and a gravel mined area (Fig. 13). Cultural materials are present on the beach below the site; these materials include flaking debris and ceramics. At the time of recording in June 1978, there was a partially intact fire hearth in the cutbank, so the portion of the site which remains intact may be fairly undisturbed.

Most of the site area appears to have been destroyed, either through gravel mining of the adjacent terrace surface or from wave induced erosion of the cutbank which faces the reservoir. The site area is also heavily used as a picnic ground, so artifact collecting on the beach below the site is common.

Cultural materials include Plains Village ceramics and projectile point fragments, and heavily patinated flaking debris; this suggests multiple components for the site spanning several thousand years.

Isolated Finds

During the course of the survey from Walth Bay to Mobridge, the crew located isolated artifacts or small groups of artifacts which could not be legitimately called archeological sites due to uncertain association. These 19 cultural materials were designated as "isolated finds". The criteria used in this study for selection between sites and isolated finds are somewhat subjective and should be made more explicit in future studies. Even so, the artifacts described here have been

adequately documented, and the find spots can be reexamined during future work in the area.

Isolated find #1 is a single, heavily patinated waste flake which was found on the beach (Fig. 9).

Isolated find #2 is a single nonpatinated waste flake which was found on the beach (Fig. 9).

Isolated find #3 consists of a large core and a segment of a patinated, notched projectile point (Fig. 11).

Isolated find #4 consists of heavily patinated, triangular biface which was found on the beach (Fig. 11).

Isolated find #5 consists of a small, unpatinated Knife River flint end scraper which was found on the beach (Fig. 11).

Isolated find #6 consists of two large, heavily patinated, Knife River flint bifacial preforms. They were found together on the beach (Fig. 11).

Isolated find #7 consists of 1 heavily patinated core and 1 nonpatinated waste flake. They were found on the beach (Fig. 11).

Isolated find #8 consists of 10 small chunks of fire-cracked rock which were found in a small pocket on the beach (Fig. 11).

Isolated find #9 consists of 48 patinated flakes found on the beach in a pile. These were probably left after someone had engaged in illegal relic collecting on the beach. As discussed in the preceding section, these flakes were found on the beach below the Old Trailer site (39WW46) and probably were eroded from the site above (Fig. 11).

Isolated find #10 consists of a heavily patinated chipped stone end scraper and a large, nonpatinated core. These were found on the beach (Fig. 11).

Isolated find #11 consists of a nonpatinated, irregular, bifacially flaked stone tool found on the beach at the margin of the Corps of Engineers Indian Creek recreation area (Fig. 10).

Isolated find #12 consists of a small nonpatinated, unidentifiable projectile point segment found above the beach in a landscaped area at the margin of the Corps of Engineers Indian Creek recreation area. (Fig. 12).

Isolated find #13 consists of a heavily patinated waste flake and a heavily patinated projectile point base. These artifacts were found in a small road near the Whitecap site (39WW43). As was the case at the Whitecap site, the dense grasses in the areas around the road prevented examination of the ground surface to determine whether or not these artifacts are part of an archeological site (Fig. 12).

Isolated find #14 consists of a very heavily patinated end scraper fragment which was found on the beach. The extreme detree of

weathering or patination on this artifact suggests considerable antiquity (Fig. 12).

Isolated find #15 consists of a small unpatinated projectile point fragment, probably Plains Village in origin. It was found in a small road, just above the beach. Reexamination of the area where IF14 and IF15 were located may reveal an archeological site, since there were other flakes in the area of possible cultural origin. The area is at the margin of heavily used recreation area, so illegal collecting is probably regularly practiced (Fig. 12).

Isolated find #16 consists of 1 large nonpatinated core, 6 nonpatinated flakes, and 8 patinated flakes. They were found at the margin of a high upland terrace which overlooks the lake (Fig. 9). This isolated find has been reclassified as the High Point site (39WW56) since it was believed that the lithic materials at this location warranted treatment as an archeological site.

Isolated find #17 consists of 2 bifacially flaked stone tool fragments, 1 nonpatinated end scraper and 3 patinated flakes. The lithic materials were found in a small road and on the adjacent beach at the northern margin of a Corps of Engineers recreation area (Fig. 12),

Isolated find #18 consists of 1 core, 6 patinated flakes, and 1 small bone fragment. The cultural materials were found in situ in the cutbank near the Whitecap site (39WW43) (Fig. 12). These materials could be from the Whitecap site, but no connection can be established at this time.

Isolated find #19 consists of 1 bifacially flaked stone tool fragment, 1 nonpatinated utilized flake and 1 patinated waste flake. These materials were found on the beach at the base of a cutbank (Fig. 9).

The isolated artifacts encountered during the course of the survey from Walth Bay to Mobridge might have come from a variety of sources. They may be, in some cases, indicative of an archeological site in the near vicinity which cannot be detected at this time due to factors such as heavy vegetation cover. They may also truly represent isolated activities such as hunting or game processing which were removed from habitation areas.

Geologic Exposures

During the course of the survey from Walth Bay to Mobridge, the survey crew attempted to record all areas of geologic interest which might pertain to early aboriginal occupation of the area. Specifically, an attempt was made to locate and record outcrops of the Holocene age Oahe formation which was originally defined in North Dakota (Clayton et al. 1976). The various units of the Oahe formation can be correlated with distinct stratigraphic units at the Travis 2 site and with soil profiles at the Walth Bay site (Ahler et al. 1977:31-35). Since the formation is associated with remains of very early archeological complexes at both Travis 2 and in the lower levels at Walth Bay, additional outcrops of the formation would be of great interest to

archeologists interested in the early occupation of the Middle Missouri subarea.

The survey crew recorded all definable exposures of the Oahe formation in the cutbanks as well as other exposures and outcrops which might be of interest to archeologists and geologists.

Area A consists of a 1.5 m thick soil horizon atop a gravel terrace in a cutbank exposure. The soil is light brown except for a 30cm thick dark brown band at the contact with the gravel which might be a paleosol. This exposure appears to be the Oahe formation and can be readily observed from the Walth Bay archeological site (Fig. 9).

Area B consists of a 3 m high cutbank exposure of light brown silty soil which exhibits some dark bands and which may be part of the Oahe formation. The profile is underlain by a gravel terrace (Fig. 9).

Area C consists of a 2 m thick soil profile exposed in a cutbank. The upper 1.5 m is light brown, beneath that is a 30 cm thick dark brown band which is in turn underlain by a yellowish silty soil. The entire profile is underlain by a gravel terrace and probably represents an outcrop of the Oahe formation (Fig. 9).

Area D consists of a 4 m thick soil profile in a cutbank exposure. The upper 2 m consists of light brown soil which is underlain by a narrow dark band. This is underlain by light yellowish soil. The entire profile is underlain by gravels and probably represents an example of paleosol development and possibly an outcrop of the Oahe formation (Fig. 9).

Area E consists of two outcrops of large, rounded boulders, presumably of glacial origin. The rocks resemble rip-rap in appearance (Fig. 10).

Area F consists of a small peninsula which is composed of a dark soil horizon which is eroding into the reservoir. It is overlain by lighter soils; therefore, it may represent a paleosol (Fig. 10).

Area G consists of a 1 m thick soil horizon atop a 3-4 m thick clay layer exposed in a cutbank. The soil zone contains a thin dark band which is suggestive of paleosol development (Fig. 10).

Area H consists of a 1.5 m high soil profile atop a gravel terrace. It contains no evidence of paleosol development, but it is unique for the area in which it is located (Fig. 10).

Area I consists of a 4 m high light brown soil profile which overlies a gravel layer. At the contact between the light brown soil and the gravel, there is a 20 cm thick dark band which may be indicative of paleosol development. This exposure may represent an outcrop of the Oahe formation (Fig. 11, 12).

Area J consists of a high cutbank capped by 2 m of gray silty soil. This is underlain by a zone of dark bands which resemble the Oahe formation (Fig. 12).

It is hoped that these observations will be of some use to those researchers interested in the Holocene geology and early human occupation of the middle Missouri valley.

Additional Reconnaissance

During the summer months, the Travis 2 monitoring crew conducted limited reconnaissance work in areas other than between Walth Bay and Mobridge. The work resulted in the recording of three previously unknown archeological sites which were all lithic scatters. One of them is located in the Corps of Engineers Swan Creek recreation area, and the other two are located on the right bank of the Missouri River in Corson County, near the Jake White Bull site (39C06).

The Little Runner site (39WW55) is located in the Corps of Engineers Swan Creek recreation area, approximately 20 miles south of Mobridge, on the left bank of the Missouri River. The site consists of a lithic scatter which was found in the water at the base of a cutbank. The cultural materials found at the site include flaking debris, fire-cracked rock, and bison bone. The cultural materials appear to be eroding out of a buried paleosol which is being actively scoured by the reservoir wave action at times of high pool elevation.

No cultural period can be assigned for this site since no temporally diagnostic artifacts were recovered. Some of the flaking debris is heavily weathered or patinated, which suggests considerable age. These materials and the absence of ceramics suggests a preceramic date for the site.

The site is located at the margin of a public picnic area, making it a likely target for unauthorized relic collecting. It is difficult to determine the true size of this site as the heavy vegetation cover above the cutbank made accurate appraisal impossible.

The Tasoom Site (39C056) consists of a small lithic scatter 30m in diameter at the top of a cliff-like, 20-high cutbank which is approximately 1 mile south of the Jake White Bull site (39C06). The collection from this site consists of six unmodified, heavily patinated flakes. Inspection of the cutbank which forms the eastern boundary of the site was impossible.

Since no temporally diagnostic materials were recovered, it is impossible to assign the site to a cultural period. All of the flakes in the collection are heavily weathered or patinated, which suggests considerable age.

The Come Cow site (39C057) is located on the right bank of the Missouri River approximately 2 miles north of the Jake White Bull site (39C06). The site consists of a sparse lithic scatter on the spine of a small ridge, near a cutbank at the edge of the Oahe Reservoir. The survey crew collected all of the lithic materials on the surface. This site is subject to wind erosion and possibly wave induced erosion, but inspection of the cutbank and beach below the site was impossible due to high water at the time of recording.

The collection from this site is small, and no temporally diagnostic artifacts were collected; therefore, the site cannot be assigned to any cultural period. Some of the lithic materials are heavily weathered or patinated, which suggests considerable age.

IV. SUMMARY AND RECOMMENDATIONS

Travis 2 Site

Field work at the Travis 2 site in 1976 revealed that a relatively large area of the site which contained buried, early cultural deposits remained intact. In 1978, the pool elevation of the Oahe Reservoir almost completely covered this area of intact cultural deposits. Large parts of the site to the east where a variety of chronologically later cultural remains have been found were also covered. Considerable erosion occurred at the site in 1978 during the period of reinundation and drawdown. Most significantly, a strip estimated to average 1 to 2 m in width was completely removed from the southern, lakeward margin of the intact early cultural zone between ca. 400W to 450W (Fig. 3). Also, throughout the southern half of the intact early zoned, approximately 20-30 cm of silt overlying the cultural zone was also removed. The erosion also defined a distinct western edge to the intact culture-bearing deposits. While considerable erosion did occur over much of the intact early zone, the net effect of this is estimated to have been no more than a 10% reduction in the total area of early intact deposits still in situ. There has also been a general shallowing of the average depth of the cultural zone below the surface.

The controlled surface collection and analysis of typological variability in projectile points found on the beach have confirmed the presence of at least two major, spatially distinct concentrations of cultural debris eroding from the Travis 2 beach deposits. The westernmost concentration, which is the one of most significance, is associated with a single variety of lanceolate projectile point and is now estimated to extend from approximately 350W to about 485W along the beach, a lateral extent of up to 135 meters. If beach collections are reliable indicators of original loci of artifacts, this early lanceolate component may contain several subconcentrations of cultural debris (Fig. 5).

The second major artifact concentration of beach materials is centered some 50 m to the east and is characterized by stone tools, flaking debris, fire-cracked rock and preserved faunal remains in some density. Associated projectile points indicate that this occupation area is later, yet preceramic, in age. The extent, depth and stratigraphy of the cultural deposits are very poorly known in this part of the Travis 2 site. This area has undergone heavy erosion during several previous years of high water; however, it is clear that some of this cultural unit remains intact beneath the beach surface. While the greater age and cultural homogeneity of the western lanceolate component at the site will continue to give it priority in future mitigative endeavors, the eastern preceramic component is very significant and deserves more than passing attention in any mitigative program.

In the report on 1976 investigations at the site, the site was assessed as being of high significance; mitigative alternatives were discussed for dealing with protection and/or salvage of the most important cultural deposits (Ahler et al. 1977:117-122). The most

desirable alternative was stabilization and protection of the site deposits, from both shoreline erosion and vandalism. It was suggested that protection might be accomplished in part through construction of a wave and waterproof dike 400 to 500 m in length which would completely surround the intact cultural deposits. An immediate solution to the problem of vandalism was not apparent. Considering the anticipated high cost of such construction and the difficulties in dealing with vandalism, the alternative of protection was determined to be impractical and likely to be unsuccessful.

Another mitigative alternative discussed in the 1977 report was major salvage excavation of parts of the most important early deposits at the site. While this alternative was less desirable than protection, it was deemed to be more likely to be successful; therefore, it was recommended to the Corps for implementation. This mitigative plan would involve both extensive fieldwork, intensive analysis of the remains, and relevant report preparation. The fieldwork would emphasize both archeological and geological investigations through a combination of strata trenching with heavy machinery, test pitting, and large block excavations. Laboratory analysis would be a multidisciplinary effort involving studies in archeology, sedimentology, geomorphology, palynology, and paleontology. For more details of this salvage excavation plan, the reader is referred to the original discussion in Ahler et al. (1977:117-120).

As a whole, the mitigative situation at the Travis 2 site is little changed from two years ago. While significant erosion did occur at the site in 1978, the areal extent of the intact early cultural deposits is estimated to be reduced by no more than 10%; recent investigations tend to confirm the complex internal structure of the site and the presence of highly significant archeological deposits. Thus, the two main mitigative alternatives offered in 1977, protection or salvage excavation, remain in effect.

Following discussions with the Corps on the site in late October, it is apparent that protection and stabilization of the site may be within the realm of possibility from both financial and engineering perspectives. Protection might be provided by total coverage of the intact site deposits by a layer of aggregate thick and coarse enough to withstand the highly destructive forces of wave erosion. Such a plan would have the advantage of providing protection from vandalism as well. A procedure such as this would have to be undertaken in consultation with an archeologist, and with an archeologist onsite during critical construction activities in order to insure the protection of especially fragile and important parts of the site. The durability, practicality, and financial feasibility of such a construction undertaking cannot be fully assessed by these authors; it must be ultimately assessed by the engineers involved. Once a specific plan or plans for construction activities are drawn up, one or more of the authors or other qualified archeologists should be consulted for advice on archeological considerations.

The plan for mitigative action through major salvage excavation would have to be implemented in much the same format as suggested in the 1977 report. This would mean a single season of fieldwork occurring, ideally, in the fall of the year immediately following reservoir drawdown. In the earlier report a cost estimate for mitigative excavations was

was figured by several procedures to range from ca. \$193,000 to \$238,000. Given the present site condition and factors such as inflation during the last two years, the cost for a similar salvage excavation program in 1979 would be estimated to fall in the range of \$200,000 to \$250,000.

A significant consideration in relation to the possibility or feasibility of salvage excavation is the factor of timing in relation to reservoir pool elevation. A pool elevation of ca. 1608 ft msl or lower is thought to be necessary before effective subsurface salvage investigations can occur. In 1978, excavation in the spring would have been impossible due to the combination of cold weather and an especially early, rapid reservoir rise. Adequate conditions for excavation also occurred only for a brief period during the fall. The pool elevation did not drop below 1608 ft until the third week in October; cold weather began early in November, leaving only 2-3 weeks to conduct a salvage excavation that is estimated to require a 2.5 - 3.0 month period. There is every indication that circumstances will be equally unfavorable toward implementation of a salvage program in 1979. At the time of this writing, the pool elevation is near 1606 ft and regional snow cover is heavy. This indicates that a rapid, early rise and late drawdown of the Oahe pool are highly likely. It is almost certain that major salvage excavation will not prove feasible in 1979 due to unfavorable inundation and weather conditions.

Given the circumstances, two possibilities remain open for meaningful action at the site during the next year. It is possible that the site could be stabilized by a massive construction program to occur if engineering, relative cost, and scheduling considerations permit late in the winter of 1979, preferably while the ground is still frozen and prior to the next cycle of inundation. If the stabilization proves to be impossible to implement, more erosion would occur and another period of erosional monitoring will be required in 1979. If the water rises as rapidly as it did in 1978, little erosion can be expected to occur in the spring. Experience during the summer of 1978 showed that while the reservoir was at its peak in June, July and August, the site was almost completely underwater and few artifacts were freshly exposed on the beach. The period of greatest erosional activity and of greatest need for controlled collection and other monitoring would be immediately before and during the period of drawdown prior to the onset of cold weather. If monitoring is conducted at the site again this summer, it could be conducted most efficiently during a limited period from mid-August through October, depending on specific pool elevation conditions. Again, this work could be most effectively accomplished by a crew of two fieldworkers who would conduct associated analysis of beach collected artifacts. Their work would lead to a reevaluation of the site condition at the end of the high water period and to further recommendations for mitigation.

Shoreline Reconnaissance

Shoreline reconnaissance consisted of both visitation of known significant village sites in the Mobridge area as well as intensive examination of a segment of shoreline from Walth Bay to Mobridge in an attempt to locate new sites on Corps lands. Data derived from visitation

Table 8. Summary data on previously recorded archeological sites in the Mobridge area, revisited by the UND reconnaissance crew, 1978.

Site Name and Number	Totally Inundated	Partially Inundated	Actively Eroding	In Recreation Area	In Proposed Development Area	Pothunted	Previous Work	National Register Significance	Recommendations
Jake White Bull (39C06)	X	X	X			X	X	High	Alternatives in Ahler (1977:146-156) remain in effect
Walth Bay (39WW203)		X	X	X		X	X	High	Restrict public access; stabilize cutbank.
Lower Grand (39C014)		X	X	X	?	X	X	High	Relandscape; restrict public access; stabilize cutbank.
Helb (39CA208)		X	X			X	X	High	Restrict public access; periodically monitor.
Jones Village (39CA3)		X	X			X		High	Restrict public access; periodically monitor; stabilize bank.
Potts (39C019) and vicinity	X		X				X	High	Restrict public access; periodically monitor.
Molstad (39DW234)							X	High	Restrict public access; periodically monitor.
Leavenworth (39C09)	?	?	?				X	High	periodically monitor.

to known sites are summarized in Table 8, and similar data are provided for newly recorded sites in Table 9. Various aspects of the reconnaissance efforts will be discussed.

Jake White Bull (39C06)

The Jake White Bull site consists of a large earthlodge village which is rapidly being destroyed by wave induced erosion on the exposed cutbank face and by illegal digging for relics. This represents the loss of a major portion of significant information about the prehistoric occupation of the Middle Missouri subarea.

In the fall of 1976, limited test excavations were conducted at the site by the University of North Dakota. As a result of this work, recommendations consist of a series of alternatives and approximate costs associated with each of them. The condition of the site in 1978 was little changed from 1976, except that cutbank erosion and relic digging had destroyed more of the site area. Since the basic situation described in the 1977 report is unchanged, the recommendations offered there are still in effect (Ahler 1977:149-156).

Walth Bay (39WW203)

Walth Bay is a large stratified archeological site which is rapidly eroding into the Oahe Reservoir and which is also suffering damage from heavy public use. Excavations have been conducted at the site. They indicate that this is a highly significant site with four cultural horizons that span at least 7000 years. The earliest of the archeological components is associated with a Paleo-Indian occupation. The Paleo-Indian occupation of the Middle Missouri is very poorly known; therefore, the Walth Bay site could contribute some very significant information.

Although a large part of the Walth Bay site has been destroyed, a major portion remains intact; therefore, protective measures are entirely in order. It is recommended that the cutbank be stabilized to prevent further erosion of the site contents. It is also recommended that the Corps cease using the site as a recreation area, since it has suffered considerable damage from heavy public use. The site area should be fenced to restrict public access in order to protect this highly significant and irreplaceable cultural resource.

Lower Grand (39C014)

The Lower Grand or Davis site is a large earthlodge village which is currently eroding into the reservoir. Numerous excavations have been conducted at the site; however, it has recently suffered extensive damage from large-scale digging for relics. The damage from relic digging is so extensive that it would be very difficult to conduct further controlled scientific investigations at the site. Some of the site contents may be undisturbed, but the cratered, jungle-like appearance of the site surface makes determination of the extent of damage very difficult.

Although this site is heavily damaged, it is recommended that the cutbank be stabilized to halt the destruction of the site through wave erosion. It is also recommended that the Corps landscape the site area and generally clean it up. In its current condition, the site stands as a monument to the previous failure of the Corps cultural resource management program. There may be some significant information remaining in the site; it should not be abandoned to the reservoir or to the relic hunters.

Helb (39CA208)

The Helb site is a significant earthlodge village which has been all but destroyed by reservoir wave erosion. Salvage excavations have been conducted at the site by the U. S. National Park Service. Out of an original total of 40 house depressions, only portions of 4 remained as of August 1978, and they had been heavily damaged by relic diggers.

Most of the Helb site has been destroyed, and salvage excavations have been conducted in order to retrieve as much information as possible. It is recommended that access to the site be restricted in order to prevent looting and that its condition be monitored. No further excavation or stabilization is recommended.

Jones Village (39CA3)

The Jones Village site consists of a large earthlodge village which is actively eroding along an extensive and spectacular cutbank exposure. Houses, cache pits and midden areas are visible for over 500 meters in the cutbank. Relic diggers have caused extensive damage along the top of the cutbank and in the vertical exposure as well. The authors are not aware of any systematic, scientific investigations at this site.

It is not known how much of the site area behind the cutbank is intact, but it could be a considerable amount. The site has the potential to produce a great deal of significant information. It is, therefore, recommended that steps be taken to stabilize the cutbank and halt the erosion which is destroying the site. Also, steps should be taken to restrict public access to the site to prevent further looting of the type which has already caused heavy damage along the cutbank exposure. This site is especially vulnerable to looting because the cutbank exposure is so extensive and spectacular.

Potts Site and Vicinity

The Potts site (39C019) is regularly subjected to erosion from wave action since it is within the range of reservoir fluctuation. Since the site was inundated at the time of our visit in August 1978, it was impossible to document the degree of erosion or the present condition of the site. The site does come out of the water at low pool elevation and, at that time, it becomes a popular target for relic diggers.

Prior to reservoir unundation, the Potts site was the scene of Smithsonian Institution River Basin Surveys salvage excavations (Stephenson 1971). Even though the site has been partially excavated and has eroded for several years, it could still produce significant information. It is recommended that the site area be visited at low pool elevation in order to determine its condition. Also, public access should be restricted in order to prevent destructive looting.

The two sites in the immediate vicinity of the Potts site (39C017 and 39C0202) could not be accurately delimited at the time of the visit. They are represented by a scatter of cultural materials on a broad mudflat below a low cutbank. No evidence of digging for relics could be found, but it is known that the mudflat is regularly visited by relic collectors. It is recommended that the area be examined in detail at low pool elevation when the surface vegetation above the cutbank is at a minimum in order to define the limits and condition of the two sites. The area should be monitored and public access should be restricted to prevent destructive looting.

Molstad (39DW234)

The Molstad site is a large earthlodge village which was the scene of extensive salvage excavations in 1962 (Hoffman 1967). As of August 1978, cutbank erosion had not begun to erode into the site area.

No evidence of looting could be detected within the site area. Most of the site has been excavated and is in no immediate danger from cutbank erosion. It is recommended that the site be monitored periodically to determine if it is in any danger from cutbank erosion or slumping. No further excavation or stabilization is recommended at this time.

Leavenworth (39C09)

The Leavenworth site consists of two large earthlodge villages and associated burial areas. The site itself has been underwater since the Oahe Reservoir was first filled.

Extensive excavations were conducted both in the site and in the burial areas. A portion of one of the burial areas appears to be out of the water; however, no cultural materials were visible in the shoreline exposures or in the surrounding areas. It is recommended that the site be monitored periodically to assess its condition, but no further excavation or stabilization is recommended.

Walth Bay to Mobridge Shoreline Reconnaissance

The shoreline survey from Walth Bay to Mobridge was a limited project. It was not intended to be an examination of all the Corps lands in the survey area or an intensive analysis of the artifacts recovered. Rather, it was a pilot project designed to serve as a guide to the productivity and time requirements of large scale cultural resource surveys on the eastern shore of the Oahe Reservoir.

Fifteen archeological sites were recorded in the shoreline area between Walth Bay and Nobridge. Three other sites were recorded in other spot checked areas. Table 9 summarizes the condition and estimated significance of each of the sites, and provides recommendations for future action.

As already discussed, the survey was conducted in two phases. The first was during the high reservoir pool elevation of the summer. At that time, the water had submerged all of the beaches and was eroding the cutbanks. As a result, this portion of the survey was primarily confined to the area above the cutbanks. Examination of the beaches, and, in most cases, the cutbanks was impossible. Only six of the fifteen sites were discovered during this period.

The second phase of the survey was conducted at lower pool elevation when the beaches were exposed. This phase was much more productive; nine more sites were recorded. Most of the sites discovered during this phase of the survey are lithic scatters found on the eroded beach. These appear to be deeply buried early sites which become visible only when they are eroded by the reservoir wave action. Sites such as these may be totally invisible at times of high water.

With the exception of the Geezer (39WW52) and Sewer Bay (39WW41) sites, all of the sites in the survey area are lithic scatters, and the sites are eroding into the reservoir. At this time, it is difficult to determine their significance. Most of them are small, and many did not produce temporally diagnostic artifacts. They should not be ignored and considered as insignificant simply because they are not spectacular on the surface.

Most of the sites recorded in the survey are probably at least preceramic in age (Table 7). This fact alone gives them potential significance since the early occupation of the Middle Missouri Valley is very poorly known despite the huge Federal salvage programs of the 1950's and early 1960's. While specific recommendations for each site have been put forth (Table 9), it is generally recommended that they be revisited at low reservoir pool elevation. Some of them could provide very significant information about relatively unknown cultural periods.

The survey crew noted the location of 10 areas of geologic interest in the survey area between Walth Bay and Nobridge. Six of these appear to be outcrops of the Holocene age Oahe formation. Such areas should be of considerable interest to archeologists interested in the early occupation of the Middle Missouri Valley since it would appear that outcrops of the Oahe formation are fairly common. This presents the possibility of finding other early archeological sites in the area similar to Travis 2 and the lower levels at Walth Bay. Neither of the survey crew members had advanced training in geology; therefore, it is recommended that the area be reexamined by a qualified geologist working in conjunction with archeologists.

It is known that a large-scale survey of the eastern shore of the Oahe reservoir is planned for the near future. Our experience would indicate that the survey should be conducted at a relatively low pool elevation when the beaches are exposed. Extensive low water would be

Table 9. Summary data on new archeological sites recorded in the UND shoreline survey near Mobridge, SD, 1978.

Site Name and Number	Totally Inundated	Partially Inundated	Actively Eroding	In Recreation Area	In Planned Development Area	Poached	Previous Work	National Register Significance	Recommendations
High Point (39WW56)					X			Unknown	Test excavate if site is threatened by gravel mine or development.
Sackreiter (39WW54)				X				Probable	Controlled collection and mapping to define site structure.
Geezer (39WW53)		X	X	X				Unknown	Examination by geologist and archeologist.
Farmstead (39WW52)		X	X					Probable	Test excavate in the intact area between Farmstead and Creek sites.
Creek (39WW51)		X	X					Probable	Test excavate in the intact area between Creek and Farmstead sites.
Lost Hat (39WW50)	?	?	X					Unknown	Controlled collection at lower pool elevation.
Mud Flat (39WW49)	?	?	X					Probable	Controlled collection at lower pool elevation; examination by geologist and archeologist.
No Road (39WW48)	?	?	X					Unknown	Controlled collection at lower pool elevation.
Washboard (39WW47)	?	?	X	X				Probable	Test excavation in areas of high artifact density.

Table 9. Continued

Site Name and Number	Totally Inundated	Partially Inundated	Actively Eroding	In Recreation Area	In Planned Development Area	Pothunted	Previous Work	National Register Significance	Recommendations
Old Trailer (39WW46)		X	X					Probable	Test excavations above the cutbank.
Beehive (39WW45)	?	?	X	X				Probable	Controlled collection at lower pool elevation.
House Boat (39WW44)		X	X	X	X			Probable	Test excavation in areas of high artifact density.
Whitecap (39WW43)	?	?		X				Unknown	Controlled surface collection.
Kennedy Park (39WW42)				X				Probable	Controlled surface collection and mapping; test excavate.
Sewer Bay (39WW41)		X	X	X				Unknown	Continue monitoring.
Little Runner* (39WW55)		X	X	X				Unknown	Continue monitoring.
Tasoom* (39C056)		?	?					Unknown	Continue monitoring.
Come Cow* (39C057)		?	?					Unknown	Continue monitoring.

* Sites outside of the main Walth Bay to Mobridge survey area.

ideal, but minimally, some beach area must be exposed in order to provide reliable data on site location. Survey work during high water will be considerably less productive and will not be representative of the full range of cultural materials along the reservoir shoreline.

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APPENDIX A

Scope of Services

PART II - SECTION F

SCOPE OF SERVICES
HIGH-WATER MONITORING OF TRAVIS II SITE (39WW15)

I. INTRODUCTION

The Travis II Archeological Site is currently being eroded by the waters of Lake Oahe. The period of high-water will continue through August of 1978.

II. WORK TO BE ACCOMPLISHED

The work to be accomplished shall consist of (1) monitoring and controlled beach collection of the site during periods of high-water, (2) sorting and cataloguing of all artifacts collected, (3) analysis of artifacts collected, (4) production of a map delineating the original or probable original locations of tools collected, and (5) production of a report detailing the amount of site destroyed, the amount remaining, and a recommended plan for further site mitigation.

During periods of little erosion the contractor shall perform limited site monitoring, beach collection and analysis of other sites in the Mobridge vicinity, on Federal property. This analysis shall also be included in the report.

Should the Corps of Engineers instigate some type of protective measures for the site during the life of this contract, the contractor shall be responsible for monitoring this work.

III. CHARACTER AND EXTENT OF CONTRACTORS QUALIFICATIONS

a. The Contractor shall utilize interdisciplinary skills and knowledge as necessary to fulfill the requirements of this contract. In no case shall the personnel be less qualified than the professional qualifications designated in Appendix C of 36CFR Part 66, Recovery of Scientific, Prehistoric, Historic and Archeological Data: Methods, Standards and Reporting Requirements, published in the Federal Register, Vol. 42, No. 19, Friday 28 January 1977.

b. In the event of controversy or court challenge of the report, the principle investigator shall be placed under contract by the Government to testify on behalf of the Government in support of report findings.

IV. REPORT SPECIFICATIONS.

a. The Contractor shall submit ten copies of the completed report in draft form, within 150 calendar days after receipt of Notice to Proceed. The Government shall have a maximum of 60 calendar days to review the draft report. The Contractor shall have 28 calendar days to include the Government's review comments in the final report, and submit the final original report, with all negatives, photographs, maps, charts, tables, and standard drawings to the Government. The final report original shall be single spaced and "camera-ready".

b. The Contractor shall notify the Contracting Officer in advance of the release of any sketch, photograph, report, or other material of any nature concerning the work under this contract.

APPENDIX B

Research Proposals

THE
UNIVERSITY
OF
NORTH
DAKOTA

ANTHROPOLOGY - ARCHAEOLOGY
Box 8242, University Station
Grand Forks, North Dakota 58202
(701) 777-3009

May 5, 1978

Mr. Don Robinson
Procurement and Supply Division
Corps of Engineers
215 N. 17th Street
Omaha, Nebraska 68102

Dear Mr. Robinson:

The University of North Dakota is prepared to offer expert services to conduct archeological monitoring activities at the Travis 2 archeological site (39WW15), presently eroding into the Oahe Reservoir in Walworth County, South Dakota. Those services will be initiated on May 22, 1978 and will be provided according to the scope of work discussed by phone with you on this date, and according to the following itemized budget:

Salaries and Wages

Principal Investigator (S. A. Ahler) (15 days @ no compensation from the Corps)	\$ 0.00
Field Supervisor (5 months @ \$800.00)	4,000.00
Field Assistant (4 months @ \$600.00)	2,400.00

Subtotal Salaries and Wages: \$6,400.00

<u>Fringe Benefits</u> (15.0% of S and W)	960.00
<u>Indirect Costs</u> (off-campus rate of 32.0% of S,W,&F)	2,355.00
<u>Per Diem</u> (240 person-days @ \$10.00)	2,400.00
<u>Field Camp and Lab Rental</u> (4 mo. @ \$200.00)	800.00
<u>Mileage</u> (5000 miles @ \$0.14)	700.00
<u>Miscellaneous Supplies</u> (stakes, tapes, bags, etc.)	200.00
<u>Report Preparations</u> (typing, duplication)	420.00

Total Estimated Project Cost \$14,235.00

Thank you for your consideration of this matter.

Sincerely yours,

Stanley A. Ahler
Research Archeologist
Phone 701-777-3008

Dr. Earl J. Freise, Director
Research and Program Development
Phone 701-777-4278

THE
UNIVERSITY
OF
NORTH
DAKOTA

ANTHROPOLOGY - ARCHAEOLOGY
Box 8242, University Station
Grand Forks, North Dakota 58202
(701) 777-3009

September 17, 1978

Mr. Don Robinson
Procurement and Supply Division
Omaha District, Army Corps of Engineers
215 N. 17th Street
Omaha, NE 68102

Dear Mr. Robinson:

This letter is in reference to contract DACW45-78-C-0102 concerning high-water monitoring of the Travis 2 archeological site. It is requested that the contract be modified to allow 1.5 months of additional fieldwork and monitoring activity at the site in order to allow monitoring to continue uninterrupted until the site is completely out of danger from further shoreline erosion this fall. This extended period of field activity is necessary because the Oahe Reservoir pool elevation has not dropped as rapidly as had been anticipated when the contract was initially drawn up last spring.

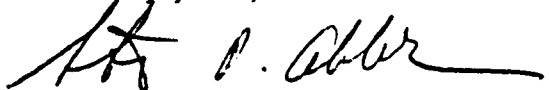
Under the existing contract, fieldwork at the site would terminate on September 22, 1978. Under the proposed modification, we will continue fieldwork, on a somewhat more intermittent basis than before, through the end of October 1978. The proposed modification would extend the report deadline 45 days beyond the deadline in the existing contract.

An itemized budget for the proposed modification is on the attached page. The one month of additional salary for field workers reflects approximately 20 on-site working days of effort between September 22 and the end of October. During this period, field workers will be dividing their time between the Travis 2 project and other projects in the Missouri Valley area. The estimated mileage cost reflects increased travel required in getting to and from the Mobridge field camp on a weekly or more frequent basis. It will be necessary to maintain the field camp in Mobridge for an additional 1.5 month period.

In order to provide uninterrupted monitoring of the Travis 2 site, I have directed the field crew to continue their activities without a break from September 22 on. This is based on the assumption that the Corps will look favorably upon the proposed contract modification and will approve funding in the very near future. Should such approval not have been made, in writing, by October 1, 1978, I will be forced for monetary reasons to cease field activities at the site at that time and proceed with report preparation under the existing contract agreement.

I sincerely appreciate your prompt consideration of this matter.

Sincerely yours,



Stanley A. Ahler, Research Archeologist

PROPOSED BUDGET MODIFICATION OF THE TRAVIS 2 HIGH-WATER MONITORING
PROJECT, CONTRACT DACW45-78-C-0102

Prepared by the University of North Dakota, Grand Forks, for the
Omaha District, U. S. Army Corps of Engineers.

Salaries and Wages

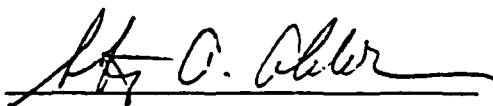
Field Supervisor (1.0 Month @ \$800.00)	\$800.00
Field Assistant (1.0 month @ \$600.00)	600.00

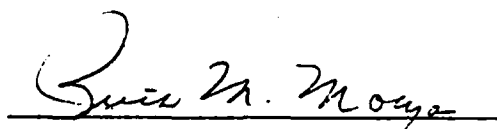
Subtotal Salaries and Wages: \$1400.00

<u>Fringe Benefits</u> (15.0% of S and W)	210.00
<u>Indirect Costs</u> (Off-campus rate of 32.0% of S, W and F)	515.00
<u>Per Diem</u> (60 person-days @ \$10.00)	600.00
<u>Field Camp and Lab Rental</u> (1.5 months @ \$200.00)	300.00
<u>Mileage</u> (3500 miles @ \$0.14)	490.00
<u>Miscellaneous Supplies</u>	100.00

Total	\$3,615.00
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Respectfully submitted,


Stanley A. Ahler
Research Archeologist
Project Principal Investigator


Ruth Morgan, Director
Grants and Contracts

Date Sept. 18, 1978

APPENDIX C

Preliminary Letter Report
on Investigations.

THE
UNIVERSITY
OF
NORTH
DAKOTA

ANTHROPOLOGY - ARCHAEOLOGY

Box 8242, University Station
Grand Forks, North Dakota 58202
(701) 777-3009

November 20, 1978

Judy Wood
Planning Division
Omaha District
U. S. Army Corps of Engineers
6014 U. S. Court House and Post Office
Omaha, Nebraska 68102

Dear Ms. Wood:

Enclosed you will find the data which we discussed on October 31, 1978, in relation to the erosional and mitigative situation at the Travis 2 site (39WW15) near Mobridge, SD. First is a map which indicates the lateral extent of the intact early cultural zone as determined from the hand coring conducted at the site on October 31. This map illustrates that erosion of the cultural zone was most severe between about 400W and 450W, with about 1-2 lateral meters of the southern margin of the intact zone being removed in 1978. Also, the coring data show that in some places, again along the southern edge, ca. 20 - 30 cm thickness of the protective brown silt overlying the cultural zone was also removed. Also, the coring data indicate that a very clear western margin to the cultural zone can be established between about 480W and 490W. Coring was extended farther to the east this year, and it is now clear that the geological horizon that contains the cultural materials in the main part of the site dips sharply to the east. It is possible that important archeology remains in situ in this part of the site, but such cannot be determined with certainty without test excavations.

In looking at the lateral area covered by the cultural zone of most interest, it is clear that a significant part of this zone is still intact, even though it is generally nearer the eroded ground surface now, and is even more vulnerable to erosion and vandalism. Given this situation, I would judge that large-scale salvage excavations conducted by geologists and archeologists remain a viable alternative plan for mitigation at the site, and that the excavation plan and related cost estimates as detailed in the 1977 report on the site (pp. 117-121) should continue to be considered the primary archeological mitigative plan for the site.

I would much prefer to see a plan of preservation and protection initiated at the site. I would hope that cost estimates and engineering considerations will make such an undertaking a viable alternative. In that regard I have enclosed a drawing of beach profiles on several grid N-S transects through the part of the site where the early materials remain intact. I would appreciate it if you would pass this page on to Frank Voss, since it may be of value to him in his consideration of engineering problems in protection of the site.

J. Wood
November 20, 1978
page 2

Since I am aware that you are in the midst of trying to decide upon which course of action to take with the site, please let me know if there are any additional data which I can provide which will be of value in your considerations.

It now appears that there will be an unavoidable delay in production of the draft of the final report on the project, and the report will not be submitted on the December 3, 1978 deadline in the existing ammended contract. This delay has arisen in large part due to the delayed termination of fieldwork at the site, which has led to a conflict in scheduling of the report writing by Douglas Goulding at the University of Colorado-Boulder. Goulding, a graduate student at Colorado, anticipated writing the majority of the report in October, during a slack period for academic activities. With the altered scheduling, however, academic demands linked to the regular semester schedule have come into conflict with completion of work on the Travis 2 report.

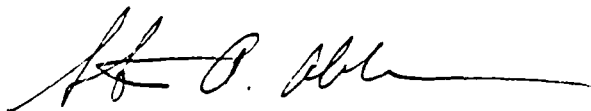
Goulding and I anticipate no difficulty in completing the report by January 31, 1979. I would like to request that the contract be modified to reflect such a deadline for the draft of the final report, with no alteration in funding or other scheduling.

I greatly appreciate your consideration of this request for ammendment of the reporting schedule; I would like to insure, if at all possible, that this alteration in scheduling will in no way hinder reaching a decision on mitigative actions at the site. Please advise me immediately if there there are data which will appear in the final report (in addition to the enclosed map and profiles) which I can provide in the nearer future for your consideration of the future of the site.

I would add one minor recommendation concerning the future of the Travis 2 site. Regardless of which form of action is taken at the site, if some type of activity is planned for the near future (excavation or protection by covering) I would recommend that an effort be made as soon as possible to remove the existing railroad rails, snow fence, wire, plastic, and other materials from the site surface. If these materials are not intended to serve as protection against another round of wave erosion next summer, they will only serve to complicate any form of mitigative action taken at the site this winter or spring. These materials tend to trap windblown sand on the beach and eventually become completely buried; their removal after such burial wll be an extremely tedious, time-consuming and potentially destructive task.

Thank you for your consideration.

Sincerely yours,



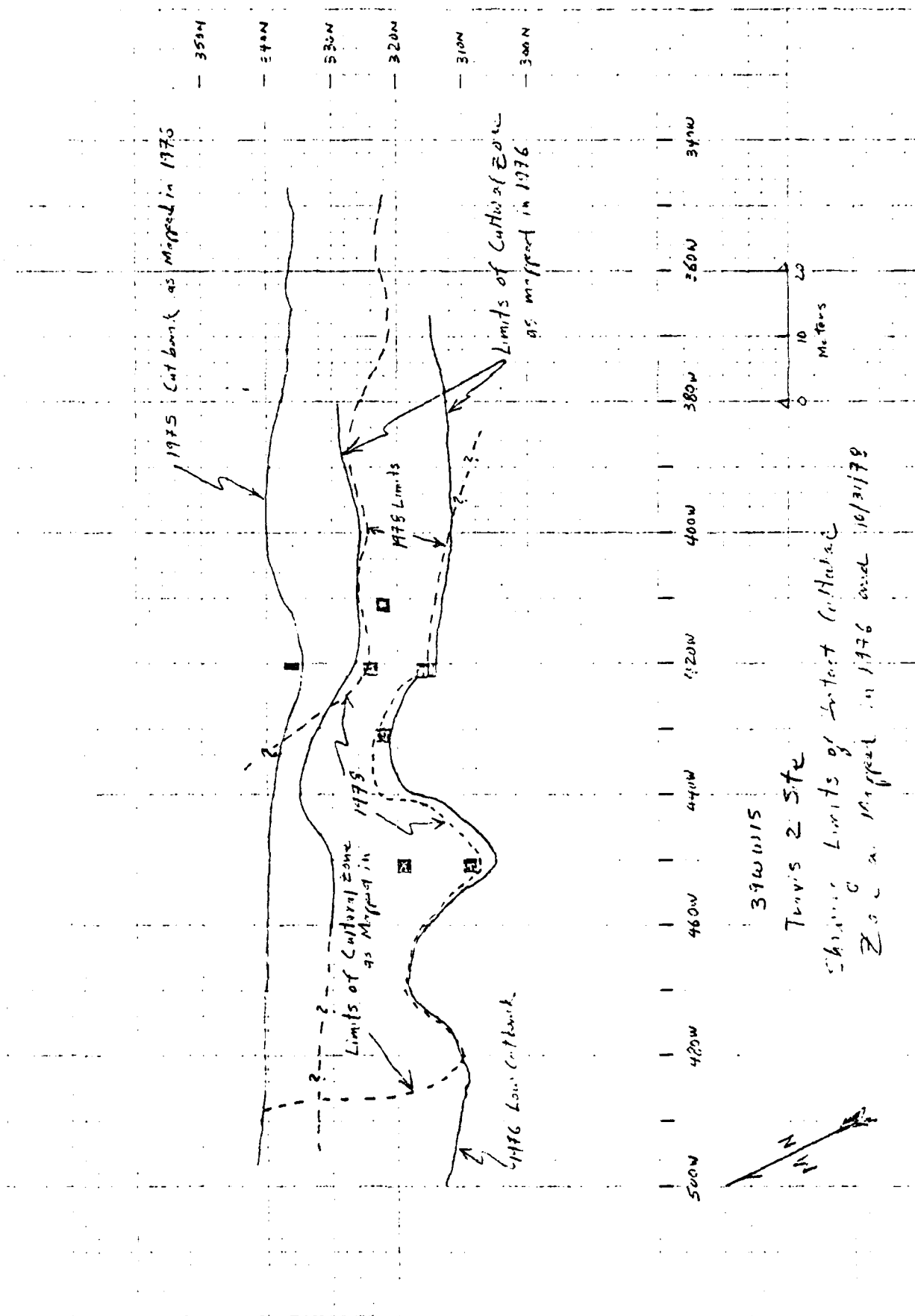
Stanley A. Ahler
Research Archeologist

enclosures: (2) as stated

cc: Doug Goulding

RECEIVED BY THE DIRECTOR, ARMY AIR FORCE
11 SEP 1954

U.S. DEPT. OF JUSTICE



12-82

1975
cutbank
↓

0 5 10
Scale in Meters, Vertical
and Horizontal

El. Difference Between
290 N and 345 N
↓

500 W Line

3.90 m

Water Level
10/30/78

480 W Line

3.62 m

450 W Line

4.23 m

1976 Profile

420 W Line

4.43 m

1976 Profile

390 W Line

4.40 m

350 W Line

4.48 m

340 N

330 N

320 N

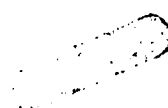
310 N

300 N

290 N

Travis 2 Site Beach Profiles on N-S Grid Transits
as mapped 10/30/78

APPENDIX D



South Dakota Site Forms
and
North Dakota Cultural Resource
Survey Forms

END

DATE
FILMED

8-81

DTIC